Environmental Assessment and Finding of No Significant Impact

Hartsville Nuclear Plant Site
Trousdale and Smith Counties, Tennessee
Transfer of TVA Property
For Industrial Park

Tennessee Valley Authority

March 2002

FINDING OF NO SIGNIFICANT IMPACT
TENNESSEE VALLEY AUTHORITY
TRANSFER OF LAND AT HARTSVILLE NUCLEAR PLANT SITE

The Proposed Action and Need

The Tennessee Valley Authority (TVA) has prepared an Environmental Assessment (EA) of a proposal to transfer approximately 550 acres of land, part of the site of the partly constructed but never completed Hartsville Nuclear Plant, in Smith and Trousdale Counties, Tennessee. This Finding of No Significant Impact incorporates the EA by reference. A copy of the EA is attached.

Smith and Trousdale Counties and the surrounding area suffer from sluggish economic growth, and the lack of a quality industrial park is considered by some to contribute to this problem. To meet this need for increased economic growth, TVA proposes to sell at public auction about 550 acres of the site for industrial development. The sale would be subject to limitation that the site be used for industrial development purposes in order to further economic growth in these two counties. TVA has determined that the land in the proposed sale area is not needed to carry out the agency's plans and programs and its sale for industrial development would contribute to TVA's goals for targeted, sustainable growth in the TVA region. This sale would also allow redevelopment of a brownfield site, previously designated and partially developed as a major industrial facility, avoiding the development of a new greenfield site in Smith and Trousdale Counties. In keeping with this objective, TVA would only consider proposals from qualified purchasers who would then sell or lease the land to prospective developers.

Alternatives

TVA considered three alternative actions:

Alternative 1, No Action--Under this alternative, TVA would retain the site in its current state for future use by TVA. While this alternative would ensure the short-term continuation of the existing environmental conditions of the site, it would preclude any immediate opportunity for TVA to recover the investment it made in the now canceled Hartsville Nuclear Plant project. Further, this alternative would also negate or delay opportunities for county governments in Smith and Trousdale Counties to obtain needed land for industrial development. The lack of a quality industrial park is considered by some to contribute to the area's sluggish economic growth. Without the availability of this land, Smith and Trousdale Counties would be forced to evaluate other sites, including currently undeveloped or greenfield sites. Finally, this alternative does not address the final disposition and long-term use of the site.

Alternative 2 - Sell the Land to Industrial Users on an As-Needed Basis--Under this alternative, TVA, having declared about 550 acres of land surplus to its needs, would retain this land until such time as industries desiring to locate on the site have been identified by a local, development board or through self-identification. This alternative, while allowing TVA to have more direct control over the specific industries locating on the site, could result in piecemeal development inconsistent with the industrial development plan of the counties. From an environmental standpoint, the impact of selection of this alternative would be similar in kind and degree to the proposed course of action (i.e. Alternative 3), but the quality of the overall development might be impaired because the site would be developed on a piecemeal basis. This alternative would require a much greater level of TVA resources for the monitoring and administrative costs of transferring many individual tracts of land instead of handling one large

transfer. This alternative would also restrict the opportunity for self-direction by the local community.

Alternative 3, Sell About 550 Acres as a Whole, the Preferred Alternative--Of the alternatives considered, this alternative would provide the best overall balance between development and environmental protection. By restricting development by way of protective covenants, environmental quality would be maintained. Development standards mutually determined by TVA and the local communities would also assure a well-thought-out, quality industrial park. This alternative would yield the best economic benefits and a better potential for community-based and directed development. This alternative provides the community with more autonomy, with the only restrictions being the guidelines and commitments developed through the National Environmental Policy Act (NEPA) process. This alternative requires less TVA staff and budgetary resources for implementation and ensures a more even partnership.

TVA has chosen Alternative 3 as the preferred alternative. TVA has determined that Alternative 3 would have no significant impacts on the quality of the environment, and it provides the best economic benefits to the communities while requiring fewer TVA resources. The mitigation described below would minimize impacts on the environment from implementing this alternative.

Impact Assessment

An interdisciplinary TVA team reviewed the potential direct, indirect and cumulative effects of the development and operation of the proposed industrial park. The following resources assessed in the attached EA were determined to suffer insignificant environmental impacts and need no special mitigation measures (regulatory requirements would of course apply and routine Best Management Practices for controlling sedimentation and erosion would be expected to be utilized): groundwater and surface water; terrestrial ecology; aquatic ecology; terrestrial threatened and endangered species, socioeconomic resources and environmental justice; transportation, prime farmland; managed areas and recreation; historical and archaeological resources and hazardous and solid waste and special wastes.

Impacts to the following resources assessed in the EA were determined to have potentially significant impacts unless special mitigation measures were adopted: floodplains, riparian habitat, wetlands, visual quality and noise. The commitments identified in the following section will ensure that these impacts are not significant.

Mitigation

The following environmental commitments have been identified for the preferred alternative (Alternative 3). These environmental and resource protection criteria would be included in the land transfer deed as real covenants that attach to and run with the land and will be binding on any party who may hereafter come into ownership or possession of the land. Adherence to these commitments during construction and operation of the proposed industrial site and associated water and sewer routes would minimize the potential for environmental impacts.

- The following uses are permitted on the Hartsville site that is the subject of this land transfer:

    1. Light and medium manufacturing, assembling, and warehousing for distribution purposes.

2. Transportation and service facilities.

3. Retail sale of products manufactured or handled at wholesale by the owner or lessee.

4. Recreation and training facilities providing service to the users of the transferred land.

5. Retail sale of food, beverage, and other such convenience items to persons employed on the property, as long as these items are not offered for sale to the general public.

6. Temporary structures necessary and incidental to any construction activity.

7. Utility facilities necessary for the provision of public services and pollution control facilities associated with site use.

8. Other industrial uses not listed above, subject to TVA's prior review and approval.

- The following uses are expressly prohibited:

  1. Temporary or permanent residential use.

  2. Retail sale of products not manufactured or handled at wholesale by the owner or lessee.

  3. Wreck, junk, or commercial waste processing; salvage yards; or similar activities (except as incidental and integral to permitted uses).

  4. Any other purpose other than such as may be expressly approved by TVA.

- No industrial site owner shall (1) fill or place any structures, fences, or other obstructions of any kind in, on, or across any portion of the land that lies within the limits of the 100-year floodway, or (2) place any structures of any kind on, in, or across any portion of the land lying outside said 100-year floodway (but within the 100-year floodplain) that has not been filled to or above elevation 470 msl.

- Areas in the 100-year floodplain where underground sewer and waterlines have been laid to serve the Hartsville Industrial Park will be returned to pre-construction conditions after completion of the sewer or waterline project, and there shall be no connections to these lines which would serve development in a 100-year floodplain, other than in the proposed industrial park.

- A minimum 50-foot riparian buffer shall be maintained along each side of the main channel of the unnamed creek located on the Hartsville site.

- Wetlands delineated in Figure 3 of this EA shall not be disturbed by construction or other activity undertaken at the Hartsville site.

- The exteriors of buildings to be located in the park shall incorporate structural arrangements and color schemes that will limit visual discord with the natural background.

- Nighttime lighting for the industrial park and buildings located in it shall incorporate features for limiting the increase in brightness of the nighttime sky.

- The front, rear, and sides of all buildings shall be visually screened from adjacent parcels and offsite property, using methods such as architectural fencing, berms, and plantings, individually or in combination.

- Noise levels in areas of the industrial park used for office buildings shall not exceed an L_{dn} of 75 dBA, and in areas to be used for wholesale, industrial, manufacturing, and utilities shall not exceed an L_{dn} of 80 dBA. Further, noise generated in the industrial park shall not cause the L_{dn} at any nearby residence existing at the time of the land transfer to exceed 65 dBA .

In addition, TVA notes the following general requirements for the project:

- Should there be any inadvertent archaeological discoveries within the proposed transfer area during the construction of the proposed Hartsville Industrial Park, the applicant shall notify TVA, and TVA shall determine appropriate measures to identify, evaluate, and treat these discoveries.

- No modification of the existing barge facility (including dredging to restore its usefulness) or other riverfront construction shall be undertaken at the Hartsville site without prior TVA approval.

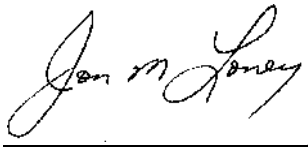
- All land disturbance shall be conducted using Best Management Practices to control erosion and sedimentation.

Public and Intergovernmental Review

As discussed in Chapter 5 of the attached EA, this project has undergone public and intergovernmental review in three ways. A local advisory committee of 22 local officials and governmental agency staff has guided the community's request and planning since the inception. Public and intergovernmental comment was solicited during the scoping of the environmental review. A notice of intent to prepare an EA or EIS was published in the Federal Register on December 27, 2000, and notices were placed in local and regional newspapers. Letters were sent to those requesting permits to hunt on the site and those holding leases. Information on the project was posted on TVA's website. A letter requesting comments on the scope was sent to a total of 32 Federal, State, and local agencies and Indian Tribes. The draft EA was placed in public libraries and on TVA's website and was sent to the governmental agencies, Indian Tribes, those who provided comments on the scope and requested a copy, and the Tennessee Conservation League. Appendix F of the EA contains the comments received from the public and TVA's responses. Appendix I contains the comments from the Tennessee Wildlife Resources Agency and the US Fish and Wildlife Service. In conformance with Section 106 of the National Historic Preservation Act, TVA determined that the project would have no effect on historic structures, historic sites, or archaeological resources, and provided this determination to the State Historic Preservation Officer (SHPO) for comment. The SHPO concurred in this determination, as noted in the letter contained in Appendix I of the EA.

Conclusion and Finding

Environmental Policy and Planning's NEPA Administration staff reviewed the attached EA on the proposed transfer of property at the Hartsville Nuclear Plant site and determined that the potential environmental consequences of TVA's proposed action (Alternative 3) have been addressed. Based on the findings in the EA, including implementation of required mitigation, we conclude that the proposed action is not a major federal action significantly affecting the quality of the environment. Accordingly, an environmental impact statement is not required.



March 1, 2002

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Tennessee Valley Authority

Date

Environmental Assessment

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TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

LIST OF FIGURES

1.0 PURPOSE AND NEED FOR PROPOSED ACTION

1.1 Introduction

In the early 1970s, the Tennessee Valley Authority (TVA) proposed to construct nuclear plants to generate electricity to meet base load demand forecasts for the 1980s and beyond. On November 23, 1974, TVA issued a draft environmental impact statement (EIS) for the construction of two nuclear plants with two units each at the Hartsville site in Smith and Trousdale Counties, Tennessee. The final EIS was issued on May 23, 1975 (TVA, 1975a, and 1975 b). When the actual electric power demand in the TVA power distribution area did not increase as rapidly as was forecast, TVA canceled the plants. The construction permit for the second plant, Plant B, was canceled on March 22, 1983, and the permit for the first plant, Plant A, was canceled on August 29, 1984. In 1996, the Hartsville Nuclear Plant site was renamed the Hartsville Investment Recovery Center (HIRC). The site remains in use as a center for TVA investment recovery operations and as a warehouse facility. In 2000, local government officials for the surrounding communities approached TVA about the possibility of transferring some of the Hartsville site to the communities for use as an industrial park. This environmental assessment (EA) was conducted to assess the environmental consequences of a No Action Alternative, whereby TVA would retain the land for future use, and of two alternatives, whereby TVA would transfer land for local industrial use.

1.2 The Proposed Action

TVA proposes to sell at public auction about 550 acres of land (a portion of the former Hartsville Nuclear Plant site) in Smith and Trousdale Counties, Tennessee, for industrial development. The sale would be subject to limitation that the site be used for industrial development purposes in order to further economic growth in these two counties. TVA has determined that the land in the proposed sale area is not needed to carry out the agency's plans and programs and its sale for industrial development would contribute to TVA's goals for targeted, sustainable growth in the TVA region. This sale would also allow redevelopment of a brownfield site, previously designated and partially developed as a major industrial facility, avoiding the development of a new greenfield site in Smith and Trousdale Counties. In keeping with this objective, TVA would only consider proposals from qualified purchasers who would then sell or lease the land to prospective developers. Figure 1 shows the project site, with the area proposed for sale identified by cross-hatching. Figure 2 is a concept plan illustrating how the site might be developed. (Originally about 700 acres were considered for transfer, and Figure 1 and Figures 3-6 were prepared based on this original proposal. Figure 2 shows a somewhat different site layout because it was prepared after preliminary environmental and engineering information led the community to request only the 550 acres not including the southwest corner of the original area proposed.) Area maps showing the location of the site are contained in Appendix C, part I.

Preliminary screening of land which TVA might possibly consider as surplus land at the HIRC revealed more than 200 acres that contained resources, such as floodplains, floodways, wetlands, potential wildlife habitat, and other environmental resources

requiring protection, and were removed from consideration for transfer. Most of the land removed from consideration for transfer contained more than one type of environmental resource. Some land in floodplains, floodways, wetlands, and wildlife habitats remains in the area being considered for transfer, but these resources would be protected by development guidelines and protective covenants.

The alternatives are: (1) to retain the land in its current state for future use by TVA: (i.e., No Action); (2) to sell the land to industrial users on an as-needed basis; and (3) to sell as a whole about 550 acres for industrial development.

For the purposes of this EA, TVA expects that all utilities including gas, electricity, water, and sewer would be provided from an off-site source. There would be no National Pollutant Discharge Elimination System (NPDES) or other water discharges other than runoff allowed, and a runoff permit would be required. In addition, any modification of the existing barge facility (including dredging to restore its usefulness) or other riverfront construction would require additional environmental review.

2.0 ALTERNATIVES

2.1 Alternative 1 - No Action

Under this alternative, TVA would retain the site in its current state for future use by TVA. While this alternative would ensure the short-term continuation of the existing environmental conditions of the site, it would preclude any immediate opportunity for TVA to recover the investment it made in the now canceled Hartsville Nuclear Plant project. Further, this alternative would also negate or delay opportunities for county governments in Smith and Trousdale Counties to obtain needed land for industrial development. The lack of a quality industrial park is considered by some to contribute to the area's sluggish economic growth. Without the availability of this land, Smith and Trousdale Counties would be forced to evaluate other sites, including currently undeveloped or greenfield sites. Finally, this alternative does not address the final disposition and long-term use of the site.

2.2 Alternative 2 - Sell the Land to Industrial Users on an As-Needed Basis

Under this alternative, TVA, having declared about 550 acres of land surplus to its needs, would retain this land until such time as industries desiring to locate on the site have been identified by a local development board or through self-identification. This alternative, while allowing TVA to have more direct control over the specific industries locating on the site, could result in piecemeal development, inconsistent with the industrial development plan of the counties. From an environmental standpoint, selection of this alternative would be similar in kind and degree to the proposed course of action, but the quality of the overall development might be impaired because the site would be developed on a piecemeal basis. This alternative would require a much greater level of TVA resources for the monitoring and administrative costs of transferring many individual tracts of land instead of handling one large transfer. This alternative would also restrict the opportunity for self direction by the local community.

2.3 Alternative 3 - Sell About 550 Acres as a Whole, the Preferred Alternative

Of the range of alternatives considered, the proposed action would provide the best overall balance between development and environmental protection. By restricting development by way of protective covenants, sensitive wetlands, the floodplain, and cultural resources would be maintained. Development standards mutually determined by TVA and the local communities would also assure a well-thought-out, quality industrial park. This alternative would yield the best economic benefits and a better potential for community-based and -directed development. This alternative provides the community with more autonomy, with the only restrictions being the guidelines and commitments identified in this EA that were developed through the National Environmental Policy Act (NEPA) process. This alternative requires less TVA resources and ensures a more even partnership.

2.3.1 Future Review and Approval

Under Alternative 3, proposed projects would be coordinated with TVA for determination of conformity with the provisions of this EA. Projects conforming to the provisions in Sections 2.3.2 and 2.3.3 below would be approved without further review. TVA would conduct further environmental review of industrial projects that do not conform before making a decision on their approval. This future review and approval would be based on three levels of potential impact:

- Commercial operations and light manufacturing with little potential to have environmental impacts, which would not require permits from the Tennessee Department of Environment and Conservation (TDEC) for air emissions, construction storm water, or discharges to sewer or water bodies, would receive no additional formal review.

- Projects with greater potential to have impacts would receive review at appropriate levels to ensure that their potential impacts have been adequately covered by this EA. Projects which fall within the industrial development guidelines listed below are expected to be eligible for categorical exclusion from additional review.

- Industrial operations with greater potential for impacts would receive review at the EA to EIS levels. Examples include those which handle large amounts of hazardous materials, emit large amounts of air contaminants, need an individual wastewater discharge to local streams, or wish to construct waterfront facilities.

The impacts of activities identified in the first two levels are addressed in this EA. Future activities which fall into the last category would be subject to additional review at the time such activities are proposed.

2.3.2 Permitted and Prohibited Uses for Alternative 3

Industries covered by this EA would be limited to those that are expected to have low environmental impacts, specifically:

- Light and medium manufacturing, assembling, and warehousing for distribution purposes.

- Transportation and services.

- Retail sale of products manufactured or handled at wholesale by the owner or lessee.

- Recreation and training to provide service to the users of the transferred land.

- Retail sale of food, beverage, and other such convenience items to persons employed on the property, as long as these items are not offered for sale to the general public.

- Temporary structures necessary and incidental to any construction activity.
- Utility services necessary for the provision of public services and pollution control associated with site use.

Other industrial uses not listed above would be subject to TVA's prior review and approval.

The following uses are expressly prohibited:

- Temporary or permanent residential use.
- Retail sale of products not manufactured or handled at wholesale by the owner or lessee.
- Wreck, junk, or commercial waste processing; salvage yards; or similar activities (except as incidental and integral to permitted uses).
- Any other purpose other than such as may be expressly approved by TVA.

2.3.3 Water and Sewer Needs for Alternative 3

Potable water and sewer services for industries anticipated under Alternative 3 would be provided from off site. The nearby town of Hartsville has an existing sewage system which uses a lagoon for treatment. Hartsville has sufficient excess capacity to serve the park without expansion. However, there is a problem with infiltration which can cause the lagoon to overflow during heavy rains. The city of Hartsville has projects underway to correct its infiltration problem. To serve the proposed industrial park, the current plan is to install a new force main and lift station(s) to connect the HIRC site to the existing sewer system. The probable route is along State Road 25, because that is a fairly direct path. Placing the force main along the road, i.e., an existing right-of-way, minimizes the potential for some types of impacts. This route would involve one major stream crossing over Goose Creek and multiple crossings of unnamed creeks. The stream crossings along the force main route are listed in Table 1. Barge, Waggoner, Sumner, and Cannon, Inc. (BWSC), have discussed the State Road 25 route as part of a preproposal letter (included in Appendix A) submitted to the city. Because this force main would be built expressly to serve the proposed industrial park, its potential impacts would also be evaluated in this NEPA process.

The BWSC drawing indicates a water tank which has been removed. If a new water tank is built, it would probably be placed within the area proposed for development. If future plans call for placement of a water tank and associated piping in locations which have not been evaluated, potential impacts would be reviewed at that time.

Table 1. Stream Crossings Along Proposed Sewer Connection Route

Stream Crossing	Name of Stream	Perennial (P) or Intermittent (I)	Watershed	Quad Map
1	Goose Creek	P	Cumberland River	Hartsville
2	Unnamed Tributary to Goose Creek	P	Goose Creek then Cumberland River	Hillsdale
3	Unnamed Tributary of Cumberland River along Western Boundary of HIRC Site	P	Cumberland River	Dixon Springs
4	Unnamed Tributary of Cumberland River along Western Boundary of HIRC Site	P	Cumberland River	Dixon Springs

2.4 Comparison of Alternatives and TVA's Preferred Alternative

Alternative 1, the No Action Alternative, represents continuation of TVA ownership of all of the land at the HIRC for potential future use. The No Action Alternative may entail the undesirable environmental impacts which might result from the governmental entities of Smith and Trousdale Counties selecting a greenfield site for use as an industrial park.

Alternative 2, sale of about 550 acres of land to industrial users on an as-needed basis, would allow TVA greater control over specific industries which would locate at the site, but would result in case-by-case development decisions which may ultimately be inconsistent with the industrial development plan of the counties. Alternative 2 would require a much greater commitment of TVA resources to recruit individual industries and transfer many individual tracts of land instead of handling one large transfer. Alternative 2 would limit the ability of the local communities to plan and direct development in their area. As discussed in the previous sections, environmentally, Alternative 2 would be similar to the proposed action, but the quality of the overall development might be impaired because the site would be developed without the benefits of an overall site development plan.

Alternative 3, sale of about 550 acres as a whole, the Preferred Alternative, would allow planned, coordinated development of the land. As with Alternative 2, the commitments listed in Chapter 4 would assure that environmental impacts of this development would be insignificant.

The analyses in this EA are based on the assumption that all transferred acres would be disturbed under either Alternative 2 or 3. Some existing buildings may remain; some may be torn down, and the construction of additional buildings is expected. Some streams within the project area may be modified. The land proposed to be made available for development under Alternative 2 or transferred for industrial development under Alternative 3 has been carefully screened to identify sensitive resources. Land

areas containing sensitive resources are not included in the proposed transfer and are excluded from this action. The commitments listed in Chapter 4 would limit all impacts to insignificant levels. Socioeconomic impacts for either Alternative 2 or 3 would be positive.

3.0 THE AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

From comments received in responses to the Notice of Intent (NOI) in the *Federal Register*, the letters sent, the paid newspaper announcements, and from internal TVA scoping of the project, the following environmental issues pertinent to the proposed action and the comparison of alternatives were identified and are addressed in this EA:

- Air Quality
- Groundwater
- Surface Water Quality
- Floodplains
- Terrestrial Ecology
- Aquatic Ecology
- Sensitive Aquatic Animals
- Terrestrial Threatened and Endangered Species
- Wetlands
- Socioeconomics
- Transportation
- Prime Farmland
- Visual Quality
- Managed Areas and Recreation, including Hunting
- Cultural Resources
- Noise
- Hazardous, Solid, and Special Wastes

3.1 Air Quality

3.1.1 Affected Environment

Tennessee has adopted the National Ambient Air Quality Standards, which establish concentration limits in the outside air for six pollutants: particulate matter, sulfur dioxide, carbon monoxide, ozone, nitrogen dioxide, and lead. These standards are designed to protect public health and welfare. An area where any air quality standard cannot be met is designated as a nonattainment area for that pollutant, and emissions of that pollutant from new or expanding sources that could affect that area are carefully controlled. The Hartsville site is in Trousdale County and Smith County on the north side of the Cumberland River where the county line between them crosses the river. There are no nonattainment areas affecting these two counties.

Tennessee has also adopted Prevention of Significant Deterioration (PSD) regulations, which are used to limit air pollutant emissions from new or expanding sources. These regulations include protection of national parks and wilderness areas that are designated PSD Class I air quality areas. A new or expanding major air pollutant source is required to estimate a potential impact of its emissions on the air quality of

any nearby Class I area, as specified by the state or local air regulatory agency, with input from the federal land manager(s) having jurisdiction over the given Class I area(s). The closest PSD Class I area is Mammoth Cave National Park, which is 53 miles to the north in Kentucky. Other Class I areas in the TVA region are all well over 100 miles distant.

3.1.2 Environmental Consequences

The Preferred Action, Alternative 3, is the proposed sale of a specified area as an industrial park. For this alternative, new industries would be limited to light and medium manufacturing or the equivalent from an environmental impact perspective.

For both Alternatives 2 and 3, any new facility that emits air pollution would be required to obtain an air quality permit from the state of Tennessee. The permit application and review process would evaluate the magnitude of air emissions from the proposed source and from any relevant existing sources, meteorological factors that affect dispersion of the pollutants, and the potential for effects on areas with special air quality requirements, such as nonattainment areas and PSD Class I areas. These permits would only be granted if the impacts were found to minimize impacts to air quality according to the regulatory requirements. In the case of Alternative 2, TVA environmental review of each specific purchase request would also be conducted, and commitments or restrictions, such as covenants to mitigate potential impacts, could result from these reviews. The commitment to limit industries to light or medium categories is part of the restrictions to be applied for Alternative 3, the proposed industrial park land sale. In addition, either Alternative 2 or 3 would cause minor pollution from increased operational traffic as a result of development of facilities.

For both Alternatives 2 and 3, temporary and intermittent air quality impacts would be associated with site preparation and facility construction activities. Pollution from fossil-fuel combustion in construction equipment, fugitive dust emissions from operation of this equipment during dry conditions, increased traffic during construction, and any open burning would cause some minor and temporary air quality degradation. However, state air pollution rules require construction projects to use reasonable precautions to prevent fugitive dust emissions and to avoid open burning under adverse conditions, such as air quality advisories or fire alerts.

Alternatives 2 and 3 have similar potential for air quality impacts. Individual sources would be expected to have minor air quality impacts because of the PSD requirements. However, cumulative impacts from Alternative 2 or 3 would be a potential concern unless commitments were made to limit manufacturing industries to the light and medium categories, which would minimize overall emissions from the industrial park. Therefore, TVA would require deed restrictions limiting manufacturing to light and medium categories.

3.2 Groundwater and Surface Water

3.2.1 Affected Environment

3.2.1.1 Groundwater

The Hartsville site is located near the northern edge of the Central Basin geologic area, which is underlain by nearly horizontal limestone strata. Near-surface geologic formations at the site belong to the Stones River Group and the Nashville Group of Middle Ordovician age. These limestone formations are generally poorly water-bearing, largely because of the presence of shale beds, shale partings, and shaley limestone. Their ability to receive, store, and transmit water is low.

The youngest formation underlying the site is the Hermitage Formation, a shaley limestone in which large, extensively interconnected openings are not common. The underlying Carters limestone and Lebanon limestone are more soluble and contain more water-bearing openings than the Hermitage (TVA, 1975b).

Overburden thickness at the site ranges from less than 10 feet to more than 70 feet and averages about 20 feet. Over most of the site area, the water table is below the top of bedrock, so that overburden has little effect on groundwater storage. Average bedrock porosity, estimated on the basis of cavity openings penetrated by several thousand feet of foundation exploration holes drilled during preconstruction studies for the canceled nuclear power plant, was about 2 percent above an elevation of 350 feet. Below elevation 350 feet, porosity was even lower. The low permeability and transmissivity of these rocks were reflected in well yield statistics for Trousdale County at that time, where the average well yield was reported to be 8 gallons per minute, and the maximum reported yield was only 50 gallons per minute.

Groundwater at the Hartsville site occurs under shallow, unconfined conditions in openings formed along fractures and bedding planes. Most of the openings have been enlarged by solution to some extent; some are of large size. Many are partly or completely filled by residual clay.

Results of water level measurements in a large number of foundation exploration holes made in May 1972 show that water levels vary with well depths. Wells a few feet apart may show a difference of several feet in depth to water. Areally inconsistent water levels are typical of rocks of low permeability. The water table does, in general, conform to topographic configuration and has a gradient of about .05 from the site to Old Hickory Lake.

The results of water quality analyses of samples collected from wells located on the Hartsville site during 1974 and 1975 are shown in Table 2. Although the data are not current, there have not been any on-site activities which would alter the static nature of groundwater quality. The groundwater at the Hartsville site was found to be of low quality with low yields. It is not considered to be an important resource.

Table 2. Average of Groundwater Quality Data Collected From Five Wells at the Hartsville Site[1] During October 1974 and January 1975

Parameter	Average
Temperature, ºC	13.3
Total coliforms/100 mL	153
Fecal coliforms/100 mL	30
pH, units	7.9
Total alkalinity, mg/L	105
Conductivity @ 25ºC, μmhos/cm	228
Dissolved solids, mg/L	131
Suspended solids, mg/L	190
COD, mg/L	30.4
Organic nitrogen, mg/L	0.37
Ammonia (N), mg/L	0.27
NO_2 + NO_3 (N), mg/L	0.22
Total phosphate as P, mg/L	0.23
Soluble phosphate as P, mg/L	0.013
Sulfate, mg/L	10.1
Boron, mg/L	0.13
Cadmium, mg/L	0.00125
Chromium, mg/L	<0.005
Copper, mg/L	0.063
Lead, mg/L	0.0731
Manganese, mg/L	1.979
Nickel, mg/L	0.165
Sodium, mg/L	4.12
Zinc, mg/L	0.274

[1]Specific well locations are shown in Figure 2.5-1, Generalized Water-Table maps, for the Hartsville site during periods of low and high water levels (TVA, 1975a).

3.2.1.2 Surface Water Quality

The project site is located on Old Hickory Lake between Cumberland River Miles (CuRMs) 283.5 and 284.9. Rainfall averages approximately 52 inches per year, with March being the wettest month at 5.3 inches and October the driest month at 3.3 inches. The average monthly air temperature ranges from 34°F in January to 76°F in August with an annual mean of about 57°F.

Old Hickory Lake extends from the dam at CuRM 216.2 to Cordell Hull Dam at CuRM 313.5. The project site is approximately 68 miles upstream of Old Hickory Dam. The drainage area upstream of the dam is 11,673 square miles. At the normal full pool elevation of 445 feet mean sea level (msl), Old Hickory Lake has a surface area of 22,500 acres and impounds 420,000 acre-feet. The reservoir has a mean depth of 18.7 feet. The mean river flow at the dam is 19,350 cubic feet per second (cfs), or approximately 1.66 cfs per square mile of drainage area. TDEC classifies the project section of the Cumberland River for domestic and industrial water supply, fish and aquatic life, recreation, irrigation, livestock watering and wildlife, and navigation. It is

not listed on the state 303(d) list of impaired streams. The Old Hickory Lake Shoreline Management Plan provides policies and guidelines for long-range management of the shoreline resources. The objectives of the management plan are to protect and restore the natural environmental conditions of the shoreline, to establish and maintain acceptable fish and wildlife habitat, to preserve aesthetic qualities, and to promote the safe and healthful use of the lake and the surrounding public land by the general public. The United States Geological Survey designation for the watershed is the Lower Cumberland-Old Hickory Lake Watershed, Cataloging Unit No. 05130201.

The city of Hartsville has sufficient capacity available to provide water supply and wastewater disposal for the site. Wastewater treatment is provided by a lagoon system. Infiltration of storm water to the sewer system is being addressed by the city to avoid future overflows of the lagoon. Additional water supply and wastewater collection mains would be required to serve the site.

Previous construction activities on the site could have resulted in areas of contamination that have surface water implications. An environmental site assessment is being conducted by TVA in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act. This process is intended to identify and mitigate any contamination that could potentially affect future use of the site on the Cumberland River.

3.2.2 Environmental Consequences

3.2.2.1 Groundwater

Alternative 1 – No Action—This action would have no effect on groundwater.

Alternatives 2 and 3 – Sell the Land to Industrial Users—Under these alternatives, the impact on groundwater from all properly managed activities would be insignificant. The types of industries expected to be located in the park would not be expected to withdraw or discharge groundwater for their operation. Existing state and federal regulations regarding waste and chemical storage would prevent major contamination of groundwater. The limited overall density of development and amount of impervious surface created would not greatly alter groundwater recharge.

3.2.2.2 Surface Water Quality

<u>Construction Impacts</u>

Alternative 1 – No Action—Under this alternative, the only potential change in surface water conditions would be the mitigation of any contamination associated with previous site activities.

Alternative 2 – Sell the Land to Industrial Users on an As-Needed Basis—Under this alternative, TVA would sell parcels as individual developers are identified. As development occurs, soil disturbances associated with access roads or other construction activities could potentially result in adverse water quality impacts.

Improper storage and handling of potential contaminants during construction could result in polluting discharges or surface runoff to receiving streams. Erosion and sedimentation could clog small streams and threaten aquatic life. Removal of the tree canopy along stream crossings could result in increased water temperatures and adverse impacts to aquatic biota.

Precautions are required in the project design, construction, operation, and maintenance that would minimize these potential impacts. Water supply and wastewater disposal would be provided by the city of Hartsville in accordance with state requirements. A new water transmission main and sewer force main are expected to be constructed along State Road 25. The stream crossings along this route are listed in Table 1. Permanent stream crossings would be made so as not to impede runoff patterns and the natural movement of aquatic fauna. Stream crossings and other construction, operation, and maintenance activities would comply with state permit requirements. This route would follow an existing right-of-way. Also, the construction permit issued by the state would require adherence to routine Best Management Practices (BMPs). BMPs and mitigation sufficient to avoid adverse impacts would be required for all construction activities. Site grading and soil removal would be minimized to preserve and protect the environment and receiving waters. Clearing operations would be staged so that only land that would be developed promptly would be stripped of protective vegetation. Mulch or temporary cover would be applied whenever possible to reduce sheet erosion. Permanent vegetation, ground cover, and sodding would be installed as soon as possible after site preparation. All natural features, such as streams, topsoil, trees, and shrubs would be preserved to the extent possible and incorporated into the final design layout. Sediment basins would be used to control sediment runoff. Surface runoff would be managed to avoid adverse impacts to upstream properties. Landscape maintenance would employ only U.S. Environmental Protection Agency (USEPA) registered herbicides used in accordance with label directions. Construction runoff and other wastewaters which are managed and discharged in accordance with applicable regulations and permits would not have a significant adverse impact on the environment. See Muncy, 1992, for more detailed information on typical BMPs used in TVA projects.

Alternative 3 – Sell about 550 Acres as a Whole—The potential for surface water impacts and required mitigative measures under this alternative are similar to those of Alternative 2.

Impacts of Operation

Alternative 1 – Nothing would be built, so there would not be any changes to storm water runoff or discharges due to new impacts of operations.

Alternatives 2 and 3 – Because the proposed industrial park would be new and no industries have announced their intentions to locate there, it is impossible to quantify precisely the likely direct impacts of their future wastewater discharges. However, it is possible to address probable impact on the environment. General types of wastewater normally produced by commercial and industrial facilities are described below. Wastewater discharges from industries may include the following:

- Storm water runoff which may be contaminated by contact with disturbed soils from construction activities, industrial materials, air emissions, or spills.

- Sanitary wastewater from bathrooms, showers, and cafeterias which is similar to that produced by homes.

- Industrial process wastewater which would vary greatly depending on the source processes.

- Noncontact cooling water which by regulation is uncontaminated except for having a higher temperature.

Characteristics

Flow and Quantity

- Sanitary wastewater would be in direct proportion to the number of employees and the type of facilities. Plants with showers and cafeterias would generate more wastewater than those which only have bathrooms.

- Industrial process wastewater would vary with the process and equipment involved.

- Storm water runoff would vary with the weather. Increasing the amount of impervious surface would also increase the volume and flow rate of storm water runoff.

- Noncontact cooling water would vary with the equipment involved. The original source may be either raw, untreated water from a well or stream or treated potable water.

Contaminants and Treatment

Depending on the type of industry and the destination of the wastewater, various constituents may have to be removed before final discharge. The ones of primary concern are those that are *p*ersistent in the environment, *b*ioaccumulate, and/or are *t*oxic (PBTs). Wastewater constituents which may require treatment include soluble organics, suspended solids, dissolved inorganics, toxics (some metals, cyanide, some organics), nutrients, oil and grease, color and turbidity, foam, and temperature. Treatment methods vary depending on the type and quantity of constituents but may include physical methods, such as skimming, filtering, and cooling, and chemical methods, such as precipitation and neutralization.

Regulations

All industrial wastewaters are regulated by various types of permits issued by local, state, and federal regulatory agencies. When industrial wastewaters are discharged in accordance with all applicable regulations, there should be insignificant negative environmental impacts.

Storm Water

Storm water runoff may become contaminated as it flows over construction areas or over commercial and industrial surfaces (roofs, parking lots, inventory stored outside, etc.). Storm water runoff permits for construction activities must be obtained from TDEC before construction begins. Appropriate routine BMPs, such as prompt revegetation and other erosion control measures, are normally required by such permits. As appropriate, monitoring for applicable contaminants would also be required before discharge at the property boundary.

After construction, storm water runoff for most new industries should not require treatment. Need for treatment would be determined by on-site processes, compliance with environmental permits, and other factors. If contamination occurs, storm water collection and treatment would be required. The type of treatment would vary according to the contaminants. The requirements in a general or site-specific storm water runoff permit would result in discharges of storm water runoff having minimal negative environmental impacts.

Sanitary and Process Wastewater

Wastewaters from commercial and industrial operations are normally:

- Discharged to the soil by septic tank adsorption field systems.
- Discharged to waters of the U.S. in accordance with an NPDES permit.
- Discharged to collection sewers leading to Publicly Owned Treatment Works (POTW).
- Hauled off site for treatment and disposal.

In all cases, applicable laws and regulations require that all wastewater must be characterized and treated, if necessary, to appropriate levels before discharge.

The nearby town of Hartsville has an existing sewage system which uses a lagoon for treatment. The Hartsville POTW currently has available capacity, which would allow it to serve the proposed industrial park without expansion. However, the Hartsville POTW also has infiltration which can almost double its normal flow and cause the lagoon to overflow during heavy rains. The city of Hartsville has submitted plans to TDEC for projects to reduce this infiltration by 30-40 percent. Approval of these plans by TDEC should mean that implementation would reduce the infiltration to manageable levels and allow the POTW to operate within its permit limitations.

The proposed plan includes installing a new force main and lift station(s) to connect the proposed industrial park to the existing Hartsville sewer system. The probable route is along Tennessee State Road 25. Placing the force main along the road minimizes the potential for some types of impacts. As listed in Table 1, this route would involve one major stream crossing over Goose Creek and multiple crossings of unnamed creeks on the western side of the HIRC site. However, all stream crossings would comply with TDEC requirements for alteration to aquatic resources, ensuring minimization of impacts to the resource. This could be achieved by several construction options. One option would be to suspend the pipes on existing bridges because the route would

follow State Road 25. Another option would be to bore under the stream which would avoid disturbing any sensitive aquatic habitats. If the streams would be disturbed, TDEC would require an Aquatic Resource Alteration Permit which would detail appropriate measures to prevent and/or mitigate any significant impacts.

The final discharge from the Hartsville POTW is regulated by the NPDES permit issued by TDEC. By law, NPDES regulations are designed to prevent more than minimal adverse impacts on the receiving stream.

Industrial discharges to the sewer system would also be regulated and controlled by the Hartsville POTW's industrial indirect discharge permitting system. This system has been reviewed and approved by TDEC as part of the city's NPDES permit. This permitting system would require that industrial wastewater which exceeds the levels in normal residential sewage be pretreated to acceptable levels before discharge to the sewer system. Industries locating in this industrial park which handle their wastewaters in this manner would not have a significant adverse impact on the environment.

3.3 Floodplains

3.3.1 Affected Environment

The Hartsville Nuclear Plant site is located around CuRM 284 in Trousdale and Smith Counties, Tennessee. Based on flood insurance rate map (FIRM) panel number 4701920035B, Trousdale County, Tennessee, published by the Federal Emergency Management Agency (FEMA) on August 16, 1982, and FIRM panel number 4702830025B, Smith County, Tennessee, published by FEMA on April 15, 1981, a portion of the proposed industrial site is located within the limits of the 100-year floodplain of the Cumberland River, elevation 469.0. In addition, as shown on the flood boundary floodway map panel number 4701920035, Trousdale County, Tennessee, published by FEMA on August 16, 1982, a portion of the proposed industrial site is also located within the limits of the 100-year floodway of the Cumberland River. The 100-year floodplain and floodway have been outlined in Figure 3. The 500-year, or "critical action" floodplain, is the area located below elevation 378.0.

The proposed water and sewer mains cross the identified floodplain of Big Goose Creek, along with other minor floodplain areas in Trousdale County and Hartsville, Tennessee.

3.3.2 Environmental Consequences

The proposed industrial site contains floodplain and floodway areas. Therefore, transfer of the property and the subsequent development of the industrial park is subject to compliance with Executive Order 11988 (Floodplain Management). Under Alternative 1 (No Action), none of the floodplain areas would be developed, consistent with Executive Order 11988. Under Alternatives 2 and 3, TVA evaluated the possibility of avoiding the floodplain area and determined that there is no practicable alternative to making this land available for development of the proposed industrial park. Without the

additional acreage, the industrial park would not be large enough to be a viable investment in the long term. The useable acreage would be considerably reduced, and the costs of development would be higher due to the need to relocate roads and utilities to less level terrain, as well as grade lots more heavily. To minimize adverse impacts, development would be prohibited within the limits of the Cumberland River 100-year floodway, and development proposed within the 100-year floodplain would be elevated above the 100-year flood elevation to reduce the potential flood risk consistent with local floodplain regulations. To minimize future impacts, the following covenant, or similar language, would be included in the final transfer document(s):

> That [Industrial site owner] (1) shall not fill or place any structures, fences, or other obstructions of any kind in, on, or across any portion of the above-described land that lies within the limits of the 100-year floodway as shown on the attached map, and (2) shall not place any structures of any kind on, in, or across any portion of the above-described land lying outside said 100-year floodway (but within the 100-year floodplain) that has not been filled to or above elevation 470 msl.

Portions of the underground sewer and water system would be constructed within the 100-year floodplains of various streams. TVA has conducted a class review of certain repetitive actions that occur in floodplains. See 46 *Federal Register* 22845 (1981). An underground pipeline is covered by TVA's 1981 class review. To minimize floodplain impacts, the area would be returned to preconstruction conditions after completion of the project.

3.4 Terrestrial Ecology

3.4.1 Affected Environment

3.4.1.1 Plants

The Hartsville project land is located within the Interior Low Plateau Physiographic Province as described by Fenneman (1938). In Tennessee, the Interior Low Plateau consists of two distinctive sections: the Highland Rim and the Nashville Basin. The Nashville Basin is surrounded by the Highland Rim and, thus, exists as a plain surrounded by a higher plain. The Nashville Basin was formed by erosion of the plain of the Highland Rim overlying it and varies in elevation from 550 to 700 feet. The Hartsville project land occurs in the northern portion of the Nashville Basin, immediately north of the Cumberland River.

The project land is within the Western Mesophytic Forest Region as described by Braun (1950). This forest region roughly coincides with the Interior Low Plateau but, in Tennessee, extends farther west to the loess bluffs adjacent to the Mississippi River. This is a transitional region between the Mixed Mesophytic Region to the east, where numerous tree species share the canopy in mature forests, and the Oak-Hickory and

Southeastern Evergreen Forest Regions to the west, both of which have limited numbers of canopy species in mature forests.

Within the Western Mesophytic Forest Region, the project area occurs in the Nashville Basin Section, which is geographically identical to the physiographic section of the same name. Forests of the Nashville Basin vary considerably depending upon topography and moisture. Red cedar is an important component of most forests in the Nashville Basin, and occasionally occurs in nearly pure stands. In some areas of the Nashville Basin, beginning a few miles south of the project land, exposed flats of limestone produce distinctive cedar glade communities which harbor numerous plant species.

Human activities during the past 200 years, including agriculture, repeated timber harvests, and residential development, have greatly altered the previous vegetation and have resulted in a mosaic of cover types. The most important change from presettlement conditions has been the decrease in forest cover and the increase in open areas, such as pasture and croplands. However, even in presettlement times, open areas existed in the form of limestone glades, barrens, and areas kept open by fires.

The vegetation of the Hartsville site has been strongly influenced by its partial development as a nuclear power generation project. Approximately 30 percent of the project land is developed with buildings, roads, and former parking and lay-down areas and, therefore, lacks vegetation. Plant communities occurring on site and along the associated waterline route include old fields, upland woodlands, and riparian areas.

Old fields include hayfields, pastureland, and abandoned tracts that previously supported row crops. These lands are in various stages of succession, but are typically grass-dominated communities in which native and/or exotic weeds, such as black-eyed Susan, butterfly milkweed, mullein, fescue, sericea lespedeza, blackberries, goldenrod, iron weed, broom-sage and Japanese honeysuckle, have become established. In some locations, particularly where mowing has been infrequent or absent for several years, young stands of red cedar, locust and sumac are also present. These old field communities comprise approximately 85 percent of the vegetated areas of the project land.

Upland woodlands occur along slopes and crests of the project land. These areas are characterized by red and white oaks, American beech, sugar maple, winged elm, and hickories in the forest canopy. Upland woodlands occupy about 10 percent of the project land.

Riparian areas occur along the Cumberland River and its tributaries. The forests in these areas are characterized by box elder, sycamore, silver maple, hackberry, and sweet gum with willow, privet, and river cane in the understory. Riparian areas occur on less than 5 percent of the project land.

3.4.1.2 Animals

Distinct groups of terrestrial wildlife are found in association with the vegetation types described in the plants section (3.4.1.1).

Common amphibians and reptiles often found in old field habitats include American toad, upland chorus frog, and black racer. Birds found in this type of habitat include song sparrow, eastern towhee, eastern wild turkey, and black vulture. Resident mammals include eastern cottontail rabbit, white-tailed deer, and coyote.

Amphibians and reptiles commonly found in riparian habitats include bullfrog, green frog, red-spotted newt, and northern water snake. Birds found in this type of habitat include Carolina wren, eastern phoebe, barred owl, and American woodcock. Mammals include beaver, muskrat, raccoon, and white-tailed deer. Seeps and damp rock outcrops with small pools of water are found along the hillside between the gas line and the proposed water tank connection just outside the project area. These areas provide suitable habitat for frogs and salamanders and are likely used as a water source by a variety of wildlife species.

Amphibians and reptiles found in upland woodlands include spring peeper, gray tree frog, eastern box turtle, and gray rat snake. Birds commonly found in this type of habitat include red-tailed hawk, American crow, eastern tufted titmouse, and Carolina chickadee. Mammals common to the area include eastern gray squirrel, white-footed mouse, woodland vole, and eastern chipmunk.

Several species of game animals occur on the project area. The heavily modified habitats, which are abundant on the site, provide suitable habitat for white-tailed deer and eastern wild turkey. These species are quite common in the project area. Other game species such as beaver, eastern gray squirrel, eastern cottontail rabbit, American woodcock, and northern bobwhite quail are also found on the site. Ponds and wetlands on the area provide resting and foraging habitat for waterfowl including wood duck, Canada goose, mallard, and hooded merganser.

3.4.2 Environmental Consequences

3.4.2.1 Plants

The plant communities that occur on the Hartsville site are common to, and representative of, the region of middle Tennessee in which they occur. Although the construction of the proposed facility would convert some forested areas to early successional communities, the loss of forest canopy in these habitats is expected to be regionally insignificant. Field surveys indicate that these vegetation communities are characterized by common and widespread species in middle Tennessee that would not be adversely affected by the loss of these populations. No uncommon plant communities were identified on the Hartsville land, and only insignificant impacts to botanical resources are anticipated as a result of any of the proposed alternatives.

3.4.2.2 Animals

Most of the wildlife habitats that occur on the Hartsville site are common throughout the region. Due to previous land use activities and disturbances, wildlife habitats on the Hartsville site are not of high quality. Construction of the proposed facility and the associated water and sewer routes would remove some forested habitat and displace wildlife populations that favor these habitats. Most species would find refuge in similar habitats adjacent to the site. Habitat changes would favor those terrestrial animals preferring early successional habitats. Following construction, many of these species would likely recolonize in areas surrounding the proposed industrial facility. Thus, implementation of the proposed project is not expected to result in significant adverse impacts to terrestrial animal populations of the Hartsville site. Habitats that contain seeps and wet, rocky outcrops near the proposed water tank connection do not fall within the areas proposed for disturbance; therefore, if BMPs are used during construction activities, these areas would not be adversely affected.

Construction of the proposed facility would result in some forested habitats being converted to early successional habitats, and other areas would be cleared of vegetation. Development of the industrial site may result in an increase in populations of animals which favor recently modified habitats (e.g., rock doves, European starlings, house sparrows, brown-headed cowbirds, and opossums). After fields and forests are cleared, white-tailed deer that use the site might become a “nuisance” in the area (i.e., cause crop damage) if they are no longer hunted. Retaining forested tracts and agricultural fields on the proposed site would help to decrease the likelihood of increased “pest” animal populations and would help to maintain the overall animal diversity of the site.

3.5 Aquatic Ecology

3.5.1 Affected Environment

3.5.1.1 Industrial Park Site

Aquatic habitats that could be impacted by the proposed development of an industrial park on the Hartsville site are the Cumberland River (Old Hickory Reservoir), a small perennial stream that drains most of the proposed industrial park site, and three constructed ponds (two are apparently storm water retention ponds). Aquatic communities in adjacent areas of Old Hickory Reservoir may be impacted by activities undertaken in riparian zones which change the topography of the shoreline, reduce the usefulness of shoreline areas for spawning and feeding, or alter shoreline vegetation, particularly the loss of a wooded shoreline.

The bank along the Cumberland River is almost entirely wooded, with sparse understory vegetation in areas immediately adjacent to the river. Most areas on top of the riverbank, and adjacent to formerly cleared areas are very dense, woody, old field habitats, except for small areas where access points and structures were constructed in association with the canceled nuclear plant.

TVA biologists collected monthly experimental gill net and electrofishing samples in the vicinity of the site from September 1992 through January 1993. Thirty-five species, none of which are protected species, were collected (Table 3). Gizzard and threadfin shad comprised the largest group of fish in the sample; more abundant game fish were bluegill, largemouth bass, and sauger.

Fresh-dead specimens of the mussel giant floater (*Pyganodon grandis*) were found in the two storm water retention ponds and the incomplete cooling water canal. Several federal-endangered mussel species are known from the Cumberland River near this site. During the surveys conducted in January 2001, no live specimens of previously existing colonies of endangered mussels in the vicinity of the site were found. For more details, see Appendix H.

The riparian zone of the unnamed stream on the site is generally well-vegetated with brush and small trees. Observations of the fish fauna of this stream were made during a November 30, 2000, site visit. No fish were observed in this stream above a logjam in the culvert at the lowest road crossing on this stream. Below this barrier, fish typical of small stream habitats in this area were observed. Several crayfish (*Orconectes* sp.) were observed in the stream above and below the culvert.

Table 3. Fish Collected in Monthly Netting and Electrofishing Samples at the Hartsville Site, September 1992 Through January 1993

Species	Netting		Electrofishing		Total Number	Relative Abundance
	Number	CPUE*	Number	CPUE*		
Longnose gar	36	0.9	4	0.5	40	4.4
Skipjack herring	17	0.4	-	-	17	1.9
Gizzard shad	80	2.0	218	26.0	298	33.0
Threadfin shad	-	-	166	19.8	166	18.4
Mooneye	69	1.7	-	-	69	7.7
Carp	-	-	28	3.3	28	3.1
Silver chub	-	-	1	0.1	1	0.1
Emerald shiner	-	-	18	2.1	18	2.0
Spotfin shiner	-	-	1	0.1	1	0.1
River carpsucker	21	0.5	4	0.5	25	2.8
Quillback	2	0.1	-	-	2	0.2
Smallmouth buffalo	27	0.7	11	1.3	38	4.2
Bigmouth buffalo	1	t**	3	0.4	4	0.4
Black buffalo	-	-	2	0.2	2	0.2
Spotted sucker	8	0.2	14	1.7	22	2.4
Black redhorse	4	0.1	4	0.5	8	0.9
Golden redhorse	5	0.1	13	1.5	18	2.0
Yellow bullhead	1	t**	-	-	1	0.1
Channel catfish	9	0.2	-	-	9	1.0
White bass	1	t**	-	-	1	0.1
Yellow bass	1	t**	2	0.2	3	0.3
Striped bass	2	0.1	-	-	2	0.2
Warmouth	-	-	1	0.1	1	0.1
Redbreast sunfish	-	-	2	0.2	2	0.2
Green sunfish	-	-	3	0.4	3	0.3
Bluegill	-	-	52	6.2	52	5.8
Longear sunfish	-	-	1	0.1	1	0.1
Redear sunfish	1	t**	3	0.4	4	0.4
Hybrid sunfish	1	t**	-	-	1	0.1
Spotted bass	-	-	2	0.2	2	0.2
Largemouth bass	-	-	31	3.7	31	3.4
White crappie	-	-	1	0.1	1	0.1
Sauger	11	0.3	-	-	11	1.2
Walleye	2	0.1	-	-	2	0.2
Freshwater drum	6	0.2	12	1.4	18	2.0
Total (35 species)	305		597		902	

* Catch per unit effort; gill net effort units are net nights (total 40 net nights); electrofishing effort units are hours (total 8.4 hours)

** Trace, less than 0.1

3.5.1.2 Proposed Water and Sewer Lines Route

As listed in Table 1, this route would involve one major stream crossing over Goose Creek and multiple crossings of unnamed creeks on the western side of the HIRC site. These streams have limestone and chert gravel and cobble substrates, and support aquatic communities typical of other streams in the area.

3.5.2 Environmental Consequences

Because no actions would be undertaken under Alternative 1, aquatic communities would not be impacted if the No Action Alternative were adopted.

Potential impacts to aquatic life would be similar under Alternatives 2 and 3. These potential effects are described below with respect to on-site effects and along the proposed water and sewer lines.

3.5.2.1 Potential On-Site Impacts

Because the proposed industrial park, access roads, and sewer line could impact riparian areas both along the Cumberland River and small tributaries, and would impact back-lying land, impacts to existing aquatic habitat would likely be localized to areas where industrial park facilities or infrastructure are nearest the riparian areas. In such areas, the riparian vegetation zone (primarily trees) would be reduced in width, which could result in a loss of shade and stream bank stability. Clearing or other disturbance of back-lying land would result in temporary increases in runoff and turbidity until disturbed soils become stabilized with vegetation or by other means.

As discussed earlier in Section 3.2.2.2 Surface Water Quality, with adequate measures in place to control removal of vegetation in the riparian zone (particularly woody vegetation) and with implementation of routine BMPs to control runoff from back-lying areas of disturbed soil, aquatic ecology impacts would not be significant.

3.5.2.2 Impacts of Construction of Proposed Water and Sewer Lines

As discussed earlier in Section 3.2.2.2 Surface Water Quality, with the use of BMPs during construction of these lines, impacts to aquatic communities would be insignificant. Because wastewater from the industrial park would be subject to specialized treatment when warranted and would be routed to a sanitary sewer for proper treatment, potential impacts to aquatic life and other aspects of the aquatic environment (e.g., sediments and primary productivity) would not be significant.

3.6 Sensitive Aquatic Animals

3.6.1 Affected Environment

General aquatic ecology of this site and the surrounding area is discussed in the Aquatic Ecology, Affected Environment Section (3.5.1), of this document.

3.6.1.1 Industrial Park Site

No listed aquatic species are known to occur in the small stream that runs through the main portion of the proposed industrial park site. Area I, the noncontiguous area in the northeast corner of the site is located adjacent to a tributary to Dixon Creek. Dirty darters (*Etheostoma olivaceum*), which are considered in need of management by the Tennessee Wildlife Resources Agency (TWRA), have been reported from Dixon Creek. Several federal-listed mussel species were identified in previous surveys and were expected to be found in the Cumberland River near the proposed industrial park (Table 4). Surveys by divers in January 2001 in the Cumberland River, in the vicinity of the site proposed for transfer, revealed that a once-thriving population of endangered mussels could no longer be found. The report from this survey appears in Appendix H.

Table 4. Listed Aquatic Animals Known From the Cumberland River Near the Hartsville Nuclear Site, Smith and Trousdale Counties, Tennessee

Common Name	Scientific Name	Federal Status	State Status
Dromedary pearlymussel	*Dromus dromas*	Endangered	Endangered
Cumberland combshell	*Epioblasma brevidens*	Endangered	Endangered
Purple catspaw	*Epioblasma obliquata obliquata*	Endangered	Endangered
Pink mucket	*Lampsilis abrupta*	Endangered	Endangered
Rough pigtoe	*Pleurobema plenum*	Endangered	Endangered
Appalachian monkeyface	*Quadrula sparsa*	Endangered	Endangered

3.6.1.2 Proposed Water and Sewer Lines

No sensitive aquatic animals are known from streams potentially impacted by construction of these lines.

3.6.2 Environmental Consequences

Because no actions would be taken under the No Action Alternative, aquatic communities would not be impacted if this alternative were adopted.

There exists the potential for impacts to sensitive aquatic animals under either Alternative 2 or 3. Potential effects resulting from the adoption of Alternative 3 would

tend to be more immediate, whereas those under Alternative 2 would tend to correspond to the pace of site development.

On-site impacts to sensitive aquatic animals would be insignificant if the following conditions for future construction on, and development of, the proposed industrial park were implemented:

- Removal of riparian vegetation along the unnamed tributary on the proposed industrial park site would be minimized. A minimum 50-foot riparian buffer would be maintained along each side of the main channel of the unnamed creek found on the site.

- Routine BMPs would be implemented during future on-site construction to control potential runoff. This is especially important for development on the relatively smaller tract in the northeast corner of the site which drains to a tributary of Dixon Creek to control potential runoff to Dixon Creek and to insure insignificant impacts on the dirty darter population of Dixon Creek.

There would be no significant impacts to sensitive aquatic animals from the construction of the proposed water and sewer lines.

3.7 Terrestrial Threatened and Endangered Species

3.7.1 Affected Environment

3.7.1.1 Plants

A review of the TVA Regional Natural Heritage Program database indicated there are no federal-listed and three Tennessee state-listed plant species known within 5 miles of the proposed project land. An additional five Tennessee state-listed plant species, but no federal-listed plant species, are known from the two Tennessee counties in which the proposed project land occurs (see Table 5).

Table 5. Rare Plants Reported From Smith and Trousdale Counties, Tennessee

Common Name	Scientific Name	State Status	Federal Status
Fragmented screw-moss	*Tortula fragilis*	Endangered	None
Glade cress	*Leavenworthia exigua* var. *exigua*	Special Concern	None
Harper umbrella plant	*Eriogonum longifolium* var. *harperi*	Endangered	None
Limestone fameflower	*Talinum calcarium*	Special Concern	None
Sandwort	*Arenaria fontinalis*	Threatened	None
Shorts bladderpod	*Lesquerella globosa*	Endangered	None
Western wallflower	*Erysimum capitatum*	Endangered	None
Wild rye	*Elymus svensonii*	Endangered	None

Fragmented screw-moss (*Tortula fragilis*) - This species occurs on steep, calcareous stream and river bluffs. The closest known occurrence of this species to the Hartsville land is greater than 10 miles to the southeast, along the bluffs of the Caney Fork River in Smith County.

Glade cress (*Leavenworthia exigua* var. *exigua*) **-** This species of glade cress is found in seasonally moist, cedar glade sites, as well as other habitats, such as overgrazed limestone pastures or gravel roadsides. This species occurs in Tennessee, Georgia, and Alabama and is globally rare but can appear to be locally abundant, especially when in bloom in early March and April. The nearest known occurrence of this species to the Hartsville land is approximately 13.5 miles downstream of the site on the Cumberland River in Trousdale County.

Harper umbrella plant (*Erigonum longifolium* var. *harperi*) **-** This species occurs in sunny to partially shady, disturbed areas on seasonally dry, well-drained calcareous clay soils. It grows 6 to 7 feet tall, with a highly branched inflorescence, bearing tiny flowers. In Tennessee, this species is found on ledges of vertical limestone cliffs along the Caney Fork River on the Eastern Highland Rim. The closest known occurrence of this species to the Hartsville land is more than 10 miles to the southeast, along the bluffs of the Caney Fork River in Smith County.

Limestone fameflower (*Talinum calcarium*) **-** This cedar glade endemic is known only from Tennessee and Alabama and is restricted to undisturbed or minimally disturbed glades. This species of fameflower is approximately 6 inches tall and has magenta blooms from June to August. The closest known occurrence of this species to the Hartsville land is greater than 5 miles to the southwest in Wilson County.

Sandwort (*Arenaria fontinalis*) **-** This sandwort species of moist, limestone seepage areas, is known only from Kentucky and Tennessee. It grows to about 4 inches in height, is repeatedly branched, blooms in May or June and has minute, white petals. Most of the known populations are relatively small and cover only a few square feet of surface. The closest known occurrence of this species to the Hartsville land is approximately 2.5 miles downstream of the site, along the Cumberland River in Trousdale County.

Shorts bladderpod (*Lesquerella globosa*) **-** This species inhabits calcareous, wooded, rocky slopes and cliffs, often adjacent to streams or rivers. Plants are between 12 and 20 inches tall with bright yellow cross-shaped flowers and globe-shaped fruits. The closest known occurrence of this species to the Hartsville land is approximately 5 miles downstream of the site, along the Cumberland River.

Western wallflower (*Erysimum capitatum*) **-** This species occurs on limestone bluffs and rocky, open areas. It grows to about 3.5 feet tall and produces numerous, showy, cross-shaped, orange flowers in a single cluster at the end of the stem during late May and early June. In Tennessee, it is found on steep bluffs of the Caney Fork River and on cedar barrens. The closest known occurrence of this species to the Hartsville land is

greater than 10 miles to the southeast, along the bluffs of the Caney Fork River in Smith County.

Wild rye (*Elymus svensonii*) **-** This species is restricted to rocky, calcareous river bluffs in middle Tennessee and central Kentucky. In Tennessee, it is known only from the bluffs of the Cumberland and Caney Fork Rivers in Davidson, Putnam, and Smith Counties. The closest known occurrence of this species to the Hartsville land is greater than 10 miles to the southeast, along the bluffs of the Caney Fork River in Smith County.

Suitable habitats for these and other rare plant species were sought, but not found, during field surveys of the proposed project land conducted in October and November 2000 and June 2001.

3.7.1.2 Animals

A review of the TVA Regional Natural Heritage Program database indicated that three state-listed animal species—Bewick's wren, Allegheny woodrat, and southeastern shrew—occur in Smith and Trousdale Counties. The gray bat, which is on the federal list of endangered species, is also known to occur in Smith County (Table 6). Additionally, 18 caves are reported from the two counties.

Table 6. Rare Terrestrial Animals Reported From Smith and Trousdale Counties, Tennessee

Common Name	Scientific Name	State Status	Federal Status
Birds			
Bewick's wren	*Thryomanes bewickii bewickii*	Threatened	—
Mammals			
Allegheny woodrat	*Neotoma magister*	In Need of Management	—
Gray bat	*Myotis grisescens*	Endangered	Endangered
Southeastern shrew	*Sorex longirostris*	In Need of Management	—

Bewick's wrens (*Thryomanes bewickii bewickii*) prefer habitats that include thickets, fencerows, brush piles, and areas near farm buildings and old home sites. This bird has been previously reported from the Hartsville site. Although optimal habitat for this species is now lacking, potential suitable habitat for this bird does occur on the project site.

Allegheny woodrats (*Neotoma magister*) are typically found in caves or among rocky or bluff habitats. Some rocky areas occur on the site; however, these areas are not

extensive enough to support a population of woodrats. No caves were discovered or were previously reported from the site.

Gray bats (*Myotis grisescens*) have been reported from several caves along the Cumberland River. These areas are located several miles east of the Hartsville site. Gray bats utilize caves year-round, usually occupying different caves during summer and winter. In the summer, female gray bats form large maternity colonies in caves that are usually located along rivers and reservoirs over which the bats feed. Although no suitable roosting habitat for gray bats was identified on the proposed project area, bats from nearby colonies likely forage along the adjacent Cumberland River.

Southeastern shrews (*Sorex longirostris*) occur in a variety of habitats. This species is typically associated with moist forests and wetlands, although they do occur in dryer habitats. Southeastern shrews likely occur near riparian habitats within the project area.

3.7.2 Environmental Consequences

3.7.2.1 Plants

No occurrences of, or suitable habitat for, federal- and/or state-listed plant species were identified during field inspections of the Hartsville project site. Therefore, none of the proposed alternatives are expected to have impacts on federal- and/or state-listed plant species or their habitats.

3.7.2.2 Animals

Four species of protected terrestrial animals have been reported from Smith and Trousdale Counties. Due to nature of previous land use activities and the disturbance present, habitat for protected terrestrial animals is limited.

The forested riparian corridor of the site that borders the Cumberland River may provide foraging routes for gray bat populations in the area. Because this forested riparian corridor would remain intact, no impacts to foraging gray bats are expected as a result of the proposed activity. Because wetlands would be avoided and BMPs and Best Construction Practices would be implemented during construction and operation of facilities on the Hartsville site, southeastern shrews that may occur on the area would not be adversely affected by the proposed activity. If Bewick's wrens are present, further site development would likely cause this species to seek habitat in nearby areas. The region provides many acres of apparently suitable habitat, and implementation of the proposed activity is not expected to result in significant adverse impacts to populations of Bewick's wrens. Because the site has been heavily modified in the past and the resulting habitats found on the site are common throughout the region, the project is not expected to result in adverse direct, indirect, or cumulative impacts to protected terrestrial animals or their habitats.

3.8 Wetlands

Executive Order 11990 requires federal agencies to take actions to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands when undertaking federal activities and programs. Any agency considering a proposal that might affect wetlands must evaluate factors affecting wetland quality and survival. Jurisdictional wetlands are protected under Section 404 of the Clean Water Act, which is administered by the U.S. Army Corps of Engineers (USACE). In Tennessee, activities that may alter aquatic resources, (e.g., wetlands) are also regulated by TDEC under the authority of the Tennessee Water Quality Control Act of 1977.

Field identification of wetlands used the criteria presented in the USACE Wetlands Delineation Manual (Environmental Laboratory, 1987) and subsequent guidance documents. According to the USACE criteria, in order for an area to be identified as a jurisdictional wetland, it must have a dominance of hydrophytic vegetation and positive indicators for hydric soil and wetland hydrology. Under normal circumstances, all three parameters must be present for a positive wetland identification.

Wetland types were classified using the system developed by Cowardin and others (1979). The Cowardin classification system classifies wetlands according to their geographic location on the coast (Estuarine [E]), in noncoastal areas (Palustrine [P]), or associated with lakes (Lacustrine [L]), or rivers (Riverine [R]). The classification system also identifies more detailed features of the habitat and the vegetation that is present, such as whether the area is primarily covered by trees (forested [PFO1]), shrubs and saplings (scrub-shrub [PSS1]), nonwoody plants (emergent wetland or marsh [PEM1]), and whether the area is flooded permanently (H), semipermanently (F), seasonally (C), or temporarily (A).

3.8.1 Affected Environment

Fourteen wetlands were identified on the proposed Hartsville Industrial Park site (Figure 3). The wetland classifications and locations are shown in Table 7. Ten of the wetlands (B, C, D, E, F, J, K, L, M, N) are located in the 100-year floodplain. Wetlands B, C, D, E, and F are in the floodplain of the main stream in Areas G and A. Three of the wetlands (A, G, H) are in riparian zones of this main stream and two of its tributaries in Area G, but appear to be slightly above the 100-year flood line elevation of 470 feet. Wetland O is in the riparian zone of a spring-fed stream in Area I. Wetland J is located in and around the larger of two impoundments on the site in Area F. Wetland K consists of an isolated swale in an area of a young forest just east of the large impoundment in Area F. Wetland L is in Area F in the unused water intake channel that was excavated during construction for the unfinished TVA Hartsville Nuclear Plant.

Vegetation, soils, and hydrologic data for each wetland are presented in Appendix G. The dominant plant species in the on-site wetlands include black willow (*Salix nigra*), silver maple (*Acer saccharinum*), green ash (*Fraxinus pennsylvanica*), American elm (*Ulmus americana*), box elder (*Acer negundo*), sycamore (*Platanus occidentalis*),

swamp mallow (*Hibiscus moscheutos*), cattail (*Typha latifolia*), false nettle (*Boehmeria cylindrica*), rice cutgrass (*Leersia oryzoides*), marsh elder (*Iva annua*), and various species of sedge. The hydrologic regimes of the wetlands appear to range from temporary flooding (wetlands that receive water from surface runoff and precipitation) to seasonally and semipermanently flooded (wetlands that receive water from groundwater discharge, high Cumberland River water levels, and detained storm runoff).

Table 7. Wetland Classifications and Locations on the Hartsville Site

Wetland ID	Classification[1]	Area	Landscape Position
A	PFO1C	G	floodplain
B	PFO1C	G	100-year floodplain
C	PFO1F	G	100-year floodplain
D	PFO/EM1F	A	100-year floodplain
E	PSS1F	A	embayment fringe
F	PSS1F	A	embayment fringe
G	PSS1A	G	riparian zone
H	PFO1C	G	riparian zone-seeps
J	PEM/SS1H/F	F	impoundment shallows
K	PFO1A	F	isolated depression
L	PEM1A	F	artificial channel
M&N	PFO1C	H5	river floodplain
O	PSS/EM1A/B	I	riparian zone

[1]Cowardin, et al., 1979

P - palustrine
EM - emergent
SS - scrub-shrub
FO - forested

A - temporarily flooded
B - saturated
C - seasonally flooded
F - semipermanently flooded

H - permanently flooded

The functions performed by the site wetlands include wildlife habitat, provision of plant species diversity and plant community diversity, high rates of primary (plant) production, sediment/contaminant removal, and flood attenuation. The latter two functions are enhanced by the previous placement of berms and impoundments in the riparian zone and floodplain, which, due to the relatively small size of the wetlands, probably play a greater role in flood attenuation and proficiency of sediment/contaminant removal than would the wetlands alone. The most important functions of the wetlands are probably the provisions of wildlife habitat and plant species/community diversity.

With the exception of Wetlands D, E, F, M, and N, which have developed in areas directly influenced by the fluctuating water levels of the Cumberland River, and Wetland H, which has developed at a strongly flowing groundwater seep, all of the wetlands on the site occur in previously disturbed areas and may not have been present prior to previous site development for the Hartsville Nuclear Plant. Wetlands A, B, C, G, J, K, L, and O appear to have developed since the previous site development. For instance,

drainage out of Wetlands A and B is blocked by a berm that was placed in the stream floodplain. This berm serves to retain groundwater discharge and surface runoff in these two wetlands. Other examples are Wetland G, which is within the banks of a tributary stream that has been channelized and riprapped; Wetland J, which has developed in and around a designed storm water pond; and Wetland O, which is in the riparian zone of a previously disturbed stream in a developed area. Of the wetlands that have developed in the previously disturbed areas, most have developed sufficiently to perform ecologically important functions, such as sediment/contaminant removal, wildlife habitat, and flood attenuation. Wetlands K and L perform perhaps the fewest functions because they are flooded infrequently and for short duration.

3.8.2 Environmental Consequences

Potential impacts to wetlands from future site development include drainage and filling, along with indirect impacts resulting from the introduction of sediments and contaminants, loss of vegetation through clearing, and changes in hydrology. Draining and filling are direct impacts that result in the elimination of all wetland functions. Indirect impacts, such as sedimentation or hydrologic alterations, can result in a reduction in the types and levels of functions performed.

During initial development of roads and utilities for the industrial park, wetland areas would be avoided. Deed restrictions on the individual industrial park lots would prohibit activities in wetlands and require the use of BMPs to avoid indirect impacts to wetlands.

3.9 Socioeconomics

3.9.1 Affected Environment

The proposed industrial park is largely in Trousdale County, Tennessee, on the site originally planned for the Hartsville Nuclear Plant. A small area on the southeastern side of the proposed park is in Smith County. The primary labor market for such a park would be Trousdale, Smith, Macon, Sumner, and Wilson Counties.

3.9.1.1 Population

The population of the five counties in the Hartsville area, according to the 2000 Census of Population, is 264,615, a 27.9 percent increase over the 1990 population of 206,925 (Tables 8 and 9). This growth rate is faster than that of the state of Tennessee, which grew 16.7 percent, and more than twice as fast as the nation, at 13.1 percent. Trousdale County, where most of the site is located and also the smallest of the five counties, had a growth rate of 22.6 percent, the slowest in the area but still faster than the state and the nation. Projections suggest that the area is likely to continue growing faster than the state and the nation over the next 20 years, but that Trousdale and Smith Counties are likely to grow more slowly.

Table 8. Population and Population Projections, 1980-2020

	1980	1990	2000	2010	2020
Trousdale County	6,137	5,920	7,259	7,710	8,420
Macon County	15,700	15,906	20,386	22,675	25,804
Smith County	14,935	14,143	17,712	18,681	20,401
Sumner County	85,790	103,281	130,449	165,347	204,835
Wilson County	56,064	67,675	88,809	112,128	140,005
Area Total	178,626	206,925	264,615	326,541	399,465
Tennessee	4,591,023	4,877,203	5,689,283	6,253,004	6,926,524
United States (000)	226,542	248,791	281,422	307,697	338,080

Source: Historical data from the U.S. Census Bureau; projections by Tennessee Valley Authority

Table 9. Percent Change in Population

	1980-1990	1990-2000	2000-2010	2010-2020	1980-2020
Trousdale County	- 3.5	22.6	6.2	9.2	37.2
Macon County	1.3	28.2	11.2	13.8	64.4
Smith County	- 5.3	25.2	5.5	9.2	36.6
Sumner County	20.4	26.3	26.8	23.9	138.8
Wilson County	20.7	31.2	26.3	24.9	149.7
Area Total	15.8	27.9	23.4	22.3	123.6
Tennessee	6.2	16.7	9.9	10.8	50.9
United States	9.8	13.1	9.3	9.9	49.2

Source: Based on Table 8

3.9.1.2 Labor Force and Unemployment

In 2000, the civilian labor force of the area was 138,760, as shown in Table 10. Of these, 4,480 were unemployed, for an unemployment rate of 3.2 percent. Unemployment rates ranged among the counties from 3.0 percent in Sumner and Wilson Counties to 5.1 percent in Trousdale County. The overall rate was lower than the state and national rates; however, Trousdale, Macon, and Smith Counties all had rates higher than both the state and the nation, while rates in Sumner and Wilson counties were lower.

Table 10. Labor Force Data, Residents of Hartsville Area, 2000

	Civilian Labor Force	Unemployment	Unemployment Rate
Trousdale County	1,980	100	5.1
Macon County	8,570	350	4.1
Smith County	9,630	420	4.4
Sumner County	70,020	2,130	3.0
Wilson County	48,560	1,480	3.0
Area Total	138,760	4,480	3.2
Tennessee	2,798,400	110,200	3.9
United States (000)	140,863	5,655	4.0

Source: Tennessee Department of Labor and Workforce Development

3.9.1.3 Jobs

In 1999, the Hartsville area had over 119,000 jobs, an increase of almost 37 percent from the level in 1989 (Table 11). This represents a faster rate of growth than in both the nation and the state. However, Trousdale County had a loss of 13.7 percent and Macon County grew only 5.1 percent. Smith County increased by 20.5 percent, faster than the nation but slower than the state. Both Sumner and Wilson Counties grew faster than both the state and the nation. Almost 49 percent of the jobs in 1999 were in Sumner County and another 34 percent in Wilson County. Only about 2.6 percent were in Trousdale County, where most of the site is located.

Manufacturing is a larger part of the economy of the Hartsville area than in the state or the nation. About 17.1 percent of jobs in the area are manufacturing, compared to 15.3 percent in Tennessee and 11.8 percent nationally. Except for Wilson County, at 13.5 percent, all the counties in the area are above the state average, with Trousdale the highest at 22.0 percent.

Nationally, as production has become more efficient and the economy moves more and more to a service economy, manufacturing employment has declined, decreasing by 3.7 percent between 1989 and 1999. The state of Tennessee has been following that trend, but at a slower pace, with a decline of only 1.7 percent from 1989 to 1999. Three of the five counties in the Hartsville area followed that trend. Trousdale and Macon Counties had the steepest declines, at 46.7 and 36.4 percent, respectively. Wilson County experienced a small decline of 0.4 percent, while Smith County increased by 1.5 percent and Sumner by 7.9 percent. Overall, manufacturing employment declined 3.2 percent in the five-county area.

Table 11. Employment, Hartsville Area

	1989	1999	Percent Change
Total Employment:			
Trousdale County	3,631	3,135	- 13.7
Macon County	7,600	7,991	5.1
Smith County	7,640	9,206	20.5
Sumner County	41,421	58,301	40.8
Wilson County	26,996	40,772	51.0
Area Total	87,288	119,405	36.8
Tennessee	2,753,529	3,437,597	24.8
United States (000)	137,240.8	163,757.9	19.3
Manufacturing:			
Trousdale County	1,295	690	- 46.7
Macon County	2,410	1,533	- 36.4
Smith County	1,851	1,879	1.5
Sumner County	9,953	10,744	7.9
Wilson County	5,538	5,518	- 0.4
Area Total	21,047	20,364	- 3.2
Tennessee	534,526	525,207	- 1.7
United States (000)	19,992.5	19,252.7	- 3.7

Note: Includes full- and part-time employment, both wage and salary employees and proprietors
Source: U.S. Bureau of Economic Analysis, Regional Economic Information System

3.9.1.4 Occupation Patterns

The distribution of jobs by occupation in the Hartsville area is similar to that of the state (Table 12). However, the area counties vary considerably. Sumner and Wilson Counties are very similar to the state, but the remaining counties are different. Generally, Trousdale, Macon, and Smith Counties have fewer white-collar jobs and more in the generally lower-paying jobs, such as operators, fabricators, and laborers.

Table 12. Occupation of Workers (Percent Distribution, 1990)

	Trousdale	Macon	Smith
Managerial and Professional	11.3	11.2	13.8
Technical, Sales, Administrative	22.5	18.6	22.8
Service Occupations	9.3	7.6	9.6
Farming, Forestry, Fishing	7.8	5.1	5.2
Precision Production, Craft, Repair	13.2	17.0	16.7
Operators, Fabricators, Laborers	35.9	40.6	31.8
	Sumner	**Wilson**	**Area Total**
Managerial and Professional	23.5	22.4	21.3
Technical, Sales, Administrative	31.6	33.4	30.5
Service Occupations	10.4	10.5	10.2
Farming, Forestry, Fishing	1.8	2.0	2.5
Precision Production, Craft, Repair	13.6	14.9	14.5
Operators, Fabricators, Laborers	19.1	16.9	21.2
		Tennessee	**U.S.**
Managerial and Professional		22.6	26.4
Technical, Sales, Administrative		30.1	31.7
Service Occupations		12.4	13.2
Farming, Forestry, Fishing		2.2	2.5
Precision Production, Craft, Repair		12.2	11.3
Operators, Fabricators, Laborers		20.5	14.9

Source: U.S. Bureau of the Census, Census of Population, 1990

3.9.1.5 Income

Per capita personal income in the Hartsville area in 1999 was lower than the state and national averages, at 94.7 percent of the state and 84.8 percent of the nation (Table 13). Within the area, per capita income ranged from $17,323 in Trousdale County to $25,755 in Wilson County.

Per capita personal income in the area increased by 55.6 percent from 1989 to 1999. This was slower than the Tennessee rate of 60.9 percent, but faster than the national rate of 53.8 percent. Increases in the area ranged from 47.0 percent in Smith County to 58.0 in Wilson County.

Table 13. Per Capita Personal Income

	1989	1999	% of U.S. 1989	% of U.S. 1999
Trousdale County	$11,066	$17,323	59.6	60.7
Macon County	$11,610	$17,441	62.5	61.1
Smith County	$13,742	$20,207	74.0	70.8
Sumner County	$16,190	$25,034	87.2	87.7
Wilson County	$16,300	$25,755	87.8	90.2
Area Total	$15,555	$24,198	83.8	84.8
Tennessee	$15,883	$25,548	85.5	89.5
United States	$18,566	$28,546	100.0	100.0

Source: U.S. Bureau of Economic Analysis, Regional Economic Information System

3.9.1.6 Environmental Justice

The minority population in the area, at 8.7 percent of the total in 2000, is well below the Tennessee state average of 20.8 percent and the national average of 30.9 percent (Table 14). Minority population is defined as nonwhite persons and white Hispanics; nonwhite Hispanics are already included in the nonwhite estimate and so are not counted again as Hispanic. The area county with the highest minority population share is Trousdale, at 13.9 percent. Remaining counties range from 3.0 percent in Macon County to 9.4 percent in Sumner County. Overall, the poverty level in the area, at 9.3 percent, is lower than the state, at 13.6 percent, and the nation, at 13.3 percent. However, the levels in Trousdale and Macon Counties are above the state and national levels, at 15.7 and 15.6 percent, respectively.

Table 14. Minority Population, 2000, and Poverty, 1997

	Population	Minority Population			Poverty
	Total	Nonwhite	White Hispanic	Percent Minority	% Below Poverty Level
Trousdale County	7,259	975	35	13.9	15.7
Macon County	20,386	437	165	3.0	15.6
Smith County	17,712	812	91	5.1	12.6
Sumner County	130,449	11,105	1,123	9.4	8.7
Wilson County	88,809	7,548	623	9.2	7.8
Area Total	264,615	20,877	2,037	8.7	9.3
Tennessee	5,689,283	1,125,973	57,380	20.8	13.6
United States (000)	281,421.9	69,961.3	16,907.9	30.9	13.3

Source: U.S. Bureau of the Census

3.9.2 Environmental Consequences

3.9.2.1 Alternative 1 - No Action

If the proposed industrial park is not actualized, the site would remain undeveloped, and there would be no impacts to the local economy, population, public services, or local government revenues.

3.9.2.2 Alternatives 2 and 3 - Industrial Park Development

Jobs, Income, and Population

Development of the proposed industrial park could lead to important increases in employment, income, and population in the area. Good estimates of impacts cannot be made without specific plans or proposals; however, a general idea of the possible impacts can be obtained by comparing this proposal with a similar development—the Phipps Bend Industrial District in Hawkins County, Tennessee. Like this proposal, the Phipps Bend development is on land formerly planned for a nuclear power plant, with acreage about the same as that proposed for the Hartsville site. The Phipps Bend site now has several plants, including such industries as metal, glass, and paper products. Current employment is more than 1,300 workers. The addition of this number of jobs in Trousdale and Smith Counties would be a 10 percent increase in total employment and a 50 percent increase in manufacturing employment in the two counties, compared to the 1999 estimate of jobs (see Table 11). With additional jobs from multiplier effects, the total increase in jobs could exceed 2,000, with possible total wages of $50,000,000 or more. An increase of 2,000 jobs could lead to a population increase of 5,000 or more in these counties and surrounding areas. Although many of the workers likely would live in other counties within the labor market area, Trousdale and Smith Counties probably would experience noticeable population increases. However, these increases would occur gradually over a period of several years as firms chose to locate in the industrial park.

Some of the firms locating in the park could also induce other plant locations in the general area around the park or in surrounding areas, causing additional increases in jobs, income, and population in the area.

The increases in jobs and in population would lead to a need for additional housing and to an increase in the needed level of community services, such as schools, fire and police protection, and medical services. However, since the growth in jobs and in population would occur over a period of several years, providers of these services should be able to accommodate the growth. While some investment in facilities and equipment may be necessary, local government revenues would also increase. The revenue increase may lag the need for investment somewhat, but the incremental nature of the growth should help the local governments to accommodate it. Similarly, growth in housing needs would be incremental. Because of the incremental nature of the anticipated growth, insignificant negative impacts on housing and community services would be expected.

Environmental Justice

The proposed site is located largely in Census Tract 901 in Trousdale County. (Census tracts are subcounty divisions used in tabulating and reporting decennial census data.) According to the 2000 Census of Population, Census Tract 901 has a minority population of 9.7 percent, lower than the countywide percentage of 13.9. As of the 1990 Census of Population, the latest subcounty poverty data available, Census Tract 901 has a poverty rate of 15.1 percent, lower than the 1990 county rate of 17.7 percent. A small portion of the site is in Census Tract 9750 in Smith County, which has a minority population of 4.2 percent, somewhat lower than the county. This tract had a 1990 poverty rate of 10.1 percent, also below the 1990 county level of 14.5 percent. As discussed above, these two counties have smaller minority population shares than the state; the poverty rate in Trousdale County is somewhat higher than the state, while the rate is lower in Smith County.

The population of the area around the site is generally dispersed, with no major population concentrations. Because of this and the smaller proportion of disadvantaged populations than in the county as a whole, no disproportionate impacts to disadvantaged populations are expected.

3.10 Transportation

3.10.1 Affected Environment

The proposed site is located in north-central Tennessee in Smith and Trousdale Counties, approximately 40 miles northeast of Nashville. The site lies along State Road 25 which provides access to the site. Interstate access is via I-40 at Lebanon from the west. U.S. Highway 231 provides access from the city of Lebanon north to State Road 25. The site is a portion of the former Hartsville Nuclear Plant site, and the vicinity is rural.

State Road 25 is a high-quality, two-lane, rural highway. River Road provides direct access to the industrial park site and was relocated and upgraded in coordination with the construction of Hartsville Nuclear Plant. There is a channelized intersection with dedicated turning lanes at State Road 25 and River Road. There are also truck climbing lanes located just to the west of this intersection. The latest available Average Daily Traffic (ADT) count shows approximately 3,550 vehicles per day (vpd) on State Road 25 just west of the site (Tennessee Department of Transportation, 1999).

3.10.2 Environmental Consequences

Industrial development of the site would add 32 industrial lots (approximately 422 acres) and 29 office/light industrial lots (approximately 132 acres). The industrial development would result in the generation of additional traffic on the adjacent roadway network. The industrial development may include highly diversified facilities, such as manufacturing, service, utility, assembling, and warehouses, with a wide variation in the proportions of each type. Increased traffic would result from employees commuting

to/from the site, consumers, and any possible truck deliveries and shipments. TVA estimates an increase of 5,540 vpd to the existing traffic on the local roadways due to the light industry. An estimate of approximately 1,330 vehicles would be added during the peak hour. This estimate is based on a methodology (Institute of Transportation Engineers, 1998) that utilizes traffic criteria actually measured during several field studies of various industrial parks and light industrial facilities. To achieve a balanced estimate, it is assumed that the entire area (acreage) is developed at the lowest criteria rate of ten vehicle trip ends per acre per day and 24 percent being attributed to peak hour traffic. If industries with a greater potential to generate higher volumes of traffic are considered, impacts to the transportation network would vary accordingly.

River Road north of the site to State Road 25 would continue to serve as the access road to the site. As a road dedicated to this use and built to industrial standards, it would be able to handle the increased traffic adequately, and there would be little effect on other road users. The major roadway segment that would receive the bulk of the additional traffic due to the proposed industry and would be affected the most is State Road 25 just west of the site. An estimate of 80 percent of the additional traffic would travel west of the site on State Road 25. The additional traffic due to the proposed industries would result in an increase of almost 1.5 times the ADT on State Road 25 west of the site. This level of analysis provides a broad overview of the predicted impact. Peak hour traffic, on the other hand, would experience an increase of approximately 2.5 times the ADT on State Road 25 west of the site, assuming current peak hour traffic is 12 percent of the ADT. This analysis gives a more detailed prediction of impact and quantifies the level of service of the road into six categories ranging from “A,” the best, to “F,” the lowest, using criteria from the Transportation Research Board, 1994. This increase in traffic would result in a reduced service level of State Road 25. However, a minimum level of service D could be maintained on State Road 25 adjacent to the site while accommodating the additional traffic. Level of Service D indicates an unstable flow with tolerable operating speeds maintained, but subject to sudden and considerable variation and with little freedom to maneuver. This condition is tolerable for short periods of time. Major multilane highways, such as U.S. 231 and I-40, would provide higher capacity levels, and an increase in traffic on these roadways would tend to be less noticeable. Under ideal conditions, multilane roads can carry up to 2,000 passenger cars/hour/lane. Generally, as distance from the site increases, impacts to the transportation network decrease as traffic becomes more dispersed.

As the industrial growth occurs over a long period of time, there is a natural progression by appropriate county highway departments to improve the quality of the local roadway network. Therefore, as traffic increases, roadway networks would also improve. This could include signalization, traffic control devices, intersection redesign, additional vehicle lanes, passing lanes, realignment, increased shoulder width, etc. Also, the increases in traffic would most likely occur slowly over a long span of time, so that traffic conditions would not change suddenly and would not be perceived by the user as a significant change.

3.11 Prime Farmland

3.11.1 Affected Environment

Prime farmland soils, as defined by the U.S. Department of Agriculture, are those soils which have the best combination of physical and chemical properties for production of agricultural crops. The concern that continued conversion of prime farmland to nonagricultural use would deplete the nation's resource of productive farmland prompted passage of the 1981 Federal Farmland Protection Policy Act. This act set guidelines which require that all federal agencies evaluate the impact of their projects on prime farmland in the project area prior to permanently converting land to nonagricultural use. If prime farmland would be affected, *Form AD 1006*, "Farmland Conversion Impact Rating," is completed with assistance from the Natural Resource Conservation Service to document the impact before an action is taken.

Most of the soil on the land in the Hartsville Nuclear Plant site proposed for industrial park development is classified as Udorthents or Arents (Table 15). These soils have been excavated or deeply mixed by machinery as a result of cutting and filling to shape the land surfaces. These disturbed soils which are found in the Trousdale County portion of the proposed industrial site are classified as Udorthents and cover about 503 acres. All of the site which falls in Smith County, about 77 acres, has been disturbed and the soil is classified as Arents. The next most prevalent soil classification is Inman flaggy silty clay loam which covers about 106 acres. This soil is not suitable for cropping but could be used for pasture.

Soils with characteristics to be classified as prime farmland occur on about 16 acres of land (Table 15). These soils are Armour, Arrington, Byler, and Capshaw silt loams with slopes less than 6 percent. These deep, moderately drained soils developed in alluvium on stream terraces. Because the entire Hartsville site was designated as built-up land proposed for development at the initial time of construction, these soils are no longer classified as prime farmland.

Table 15. Soils in the Proposed Hartsville Industrial Park Site

Soil Classification	Symbol	Acres
Armour silt loam*	AmB	1
Arrington silt loam*	Ar	10
Arents	Arents	77
Barfield rock outcrop, Ashwood Complex	BfC	3
Byler silt loam*	ByB	4
Capshaw silt loam*	CpB	1
Hampshire silt loam	HgC2	30
Inman flaggy silty clay loam	InD2	74
Inman flaggy silty clay loam	InE2	32
Udorthents	UD	503
Total Soils		735

*Classified as Prime Farmland Soils
Sources: Dwight Bell, District Conservationist, USDA-NRCS, Hartsville, Tenn., SSURGO database for Smith County, Tenn. *(http://www.ncg.nrcs.usda.gov/)*

3.11.2 Environmental Consequences

Because the 16 acres which include soils that would classify them as prime farmland occur within an area previously designated for use other than for agriculture, they are no longer classified as prime farmland. Therefore, completion of *Form AD 1006* is not required. Transfer of this land for development of an industrial park, either incrementally or all at once, would have no impact on prime farmland.

3.12 Visual Quality

3.12.1 Affected Environment

Visual quality of the development is important to minimize discord to viewers of the property from surrounding locations and also to maintain attractiveness within the park and long-term economic value to the tenants and community.

Urban development is extremely sparse in the vicinity of the affected area. Two small communities are nearby, Dixon Springs and Riddleton, but the tract is not visible to either of these areas. The tract may be visible from several homes from the west along the ridge line, and from the south across the Cumberland River. These views would be in the middle ground (1/2 to 4 miles) and the background (4 miles and beyond). From this distance, objects may be visible, but their details will be weak and tend to merge into larger patterns.

The affected area is a part of the site of the partially, previously constructed Hartsville Nuclear Plant. The Hartsville Plant site was not fully operational when construction was halted. The area of the industrial park was partly disturbed and intended for use as a support area for plant site operations. The dominant visual feature of the nuclear plant site (adjacent to the area proposed for transfer) is one of the cooling towers which was completed. It is over 200 feet tall and 200 feet wide and can be seen clearly from State Road 25, over a mile from the tower. There are numerous existing metal frame structures and lay-down areas within the proposed transfer site to be transferred and the rest of the Nuclear Plant site. The structures are used primarily for storage while the lay-down areas are used for dismantling equipment associated with the initial construction of the plant. Additional equipment used for earth-moving and transportation or material can be seen at most locations within the plant site area, and may be visible from the ridge lines off site. Most of this equipment is at or near existing access roads.

The site is considered common in terms of scenic attractiveness, given the large amount of land with similar visual quality in the area.

3.12.2 Environmental Consequences

3.12.2.1 Alternative 1

With no action, the site would not be developed further. Vegetation would continue to grow denser in the wooded areas and open fields that are not being maintained. The continued growth of vegetation would further enhance existing natural buffers and screening from the locations described above for the affected environment.

3.12.2.2 Alternative 2

To sell land to industrial users on an as-needed basis would gradually change the existing landscape from a level of common scenic attractiveness, combined with man-made developments, to an area of urban-scale industrial and commercial development. Visual coherence would be reduced and scenic attractiveness would be affected. The extent of adverse visual impacts would depend to a great extent on the visual sensitivity of the site planning and individual architectural designs. Activities, equipment, and materials seen during the construction activities by area residents would add temporary visual discord until project cleanup was complete for each project. This process could occur over many years as the individual sites are developed and could be viewed as somewhat permanent by local residents.

Visual congestion due to increased traffic is expected to be greater, particularly along State Route 25. Some of the residents may have direct views of the site, particularly of tracts being developed adjacent to the entrance at State Road 25. Views in the foreground from their homes would be additionally affected as an increased number of cars and trucks use the route to gain access to the plant site. The degree of impact is somewhat dependent on the location, size, density, and type of vegetation in their foreground views to the plant site and the entrance.

An increase in background sky brightness would be noticed by area residents. If typical lighting is used, the brightness increase may be noticeable for several miles. The process of mitigating the brightness increase would consist of several steps. These include evaluating the need for various nighttime activities, determining the appropriate lighting level and frequency for these activities, minimizing the quantity and use of lights, and implementing appropriate "dark sky" techniques.

Tree clearing and extensive earthwork would be required as each site is developed. The adverse impacts of these activities could be substantially reduced by careful site design that protects existing tree cover in sensitive locations. Retained and enhanced vegetative buffers around each site would minimize impacts seen by area residents, particularly at the entrance.

Broadly horizontal buildings with rooftops below the wooded skyline and with a subtle scheme of natural colors (e.g., grays, darker gray-greens, and black) would minimize contrast with the natural environment and be visually compatible. Dark roofs would provide much less contrast than very light ones, when viewed against the woodland background. Buildings with rooftops seen above the tree line could cause adverse contrast and visual discord and would need special attention to color and structure to reduce the effect.

To minimize visual impacts, each project would need to adhere to the following development standards:

- The exteriors of buildings to be located in the park shall incorporate structural arrangements and color schemes that will limit visual discord with the natural background.

- Nighttime lighting for the industrial park and buildings located in it shall incorporate features for limiting effects on background sky darkness.

- All buildings shall be visually screened from adjacent parcels and off-site property at the front, rear, and sides, using methods such as architectural fencing, berms, and plantings, individually or in combination.

Given the original use intended for the property and adherence to the development standards identified above, TVA has determined that the visual impacts of Alternative 2 would not be significant. Overall, the kind of development proposed would not be out of character with the originally intended use as a nuclear plant.

3.12.2.3 Alternative 3

The sale of about 550 acres as a whole is the Preferred Alternative. Under this action, the visual character of the land would be changed at a faster rate as parcels are sold and developed. Temporary visual discord would not last as long with simultaneous project construction. Visual concerns under this alternative would be similar to

Alternative 2, although congestion of traffic would be expected to be greater in a shorter period of time.

Under this alternative, specific mitigation concerns would be similar to those described in Alternative 2 but would cover the entire park at one time. Given the original use intended for the property and adherence to the development standards identified above, TVA has determined that the visual impacts of Alternative 3 would not be significant. Overall, the kind of development proposed would not be out of character with the originally intended use as a nuclear plant.

3.13 Managed Areas and Recreation

3.13.1 Affected Environment

A review of the TVA Natural Heritage database indicated that the proposed industrial park site is immediately adjacent to a Tennessee State Mussel Sanctuary and a USACE Reservoir Reservation. Two additional Mussel Sanctuaries and one State Wildlife Management Area (WMA) also occur in the vicinity of the Hartsville site. The site of a proposed water and sewer system associated with this project is located within the Hartsville WMA and crosses the Goose Creek portion of the USACE Reservoir Reservation.

The Cumberland River #1 State Mussel Sanctuary is located downstream of the project site, from CuRM 265.5 to U.S. Highway 231. The Cumberland River #2 State Mussel Sanctuary extends from the TVA Hartsville site service dock at CuRM 284.1 upstream to 600 feet above Dixon Island (CuRM 284.8). This section of the Cumberland River provides habitat for several endangered mussel species. The Cumberland River #3 State Mussel Sanctuary is located upstream of the project site, from CuRM 292.5 to CuRM 313.5. TWRA prohibits the taking of aquatic mollusks and/or the destruction of their habitat in these portions of the river.

The Old Hickory Reservoir Reservation begins at the Old Hickory Dam (CuRM 216.2) and extends over 100 miles upstream to Cordell Hull Lock and Dam. This area, covering 27,450 acres, includes the shoreline of the Cumberland River adjacent to the Hartsville site. In addition, the proposed water and sewer system crosses Goose Creek, also a part of the reservation. The reservoir project was designed by USACE, which operates the system primarily to produce hydroelectric power. Other uses are flood control, water and land conservation, and recreational opportunities, including camping, picnicking, boating, swimming, and fishing. The Old Hickory State WMA Unit 3 is located on the reservation 2.5 miles west of the project site. Hunting for waterfowl and small game is administered in the WMA by TWRA.

The proposed industrial park site is located within the HIRC, the location of an abandoned TVA nuclear plant site. Currently, the Hartsville site is not open to the general public. Thus, there are no open public recreation opportunities on the site. However, portions of the Hartsville site function as an *ad hoc* WMA in which TVA permits special quota archery hunts in late fall of each year. Archery deer hunts began

in 1997 as a joint venture between TVA and TWRA. The hunts were initiated because of a large deer population at the site (R. Jordan, TVA, personal communication, November 2000). Two areas are open for hunting—Area A, containing 494 acres, located at the northern end of the site, and Area B, containing 300.2 acres, located along the western edge of the site. Four hunts are conducted each year (two hunts of two days each), with a maximum of 50, lottery-chosen permits issued for each hunt in each area. Figure 4 shows the areas currently open for hunting with the area proposed for sale outlined in blue.

No wildlife enhancement efforts have been conducted at the Hartsville site; however, several agricultural fields (pasture and row crop) in Area B are licensed for use by local farmers (R. Jordan, TVA, personal communication, November 2000). Hunting Area B would be divided into two parts by the proposed sale area (see Figure 4). Approximately 131.5 acres of Area B's 300.2-acre total would be included in the proposed sale area. A 73.9-acre section of Hunting Area A would be in the proposed sale areas, located along the northeast border. Area A contains several restricted sections, including a Global Positioning System tower and gas pipeline, and is less desirable to hunters (A. Neal, site manager, TVA, personal communication, November 2000). Approximately 15 percent of Area A would be utilized for the proposed industrial park and associated infrastructure. Area B is considered to be the higher quality hunting area and is the one most used by hunters (B. Lowery, Trousdale County officer, TWRA, personal communication, November 2000; A. Neal, site manager, TVA, personal communication, November 2000). Approximately 44 percent of Area B would be included in the proposed industrial park.

According to TWRA (S. Patrick, regional manager, TWRA, personal communication, November 2000), total deer harvested in Trousdale County has averaged 840 animals over the previous six years. The deer harvest at the Hartsville WMA has fluctuated over the past three years, peaking at 40 animals in 1999.

TWRA also hosts a Free Fishing Day during National Fishing Week in the month of June at the two large impoundments on the Hartsville site. The Annual Fishing Rodeo, focusing on children under 12, draws from 300 to 500 people for a day of fishing and picnicking. Sponsors for this year's event, the fifth of its kind, included TVA, several state and local agencies, and nearly a hundred area businesses and organizations. The holding ponds are not located within the proposed sale area.

3.13.2 Environmental Consequences

Under the No Action Alternative, there would be no effects to Managed Areas or recreational opportunities. Scheduled maintenance and salvage activities, as well as deer hunts, would continue for an indefinite period of time.

Under either Action Alternative, the proposed property sale would take place. Routine BMPs used during construction, along with the riparian zone along the unnamed creek on the site, would limit sediment and other debris reaching the river channel and having more than insignificant impacts on the adjacent Cumberland River #2 State

Mussel Sanctuary. The Cumberland River #1 State Mussel Sanctuary and Cumberland River #3 State Mussel Sanctuary are located 7.7 river miles upstream and 18.6 river miles downstream of the site, respectively. Because of their distance from the Hartsville site, no impacts to these Managed Areas are anticipated as a result of the proposed action.

A portion of the water and sewer system associated with the proposed industrial development would cross adjacent Old Hickory Reservoir Reservation land. With routine BMPs followed during construction activities at Goose Creek, no significant impacts to Old Hickory Reservoir Reservation land are anticipated as a result of the proposed action.

The proposed industrial park and associated water and sewer lines would eliminate hunting within Hartsville WMA in a portion of Area A and in approximately half of Area B. Pending arrangements with TWRA, the quota archery deer hunt could be reduced, phased-out over a period of time, or discontinued altogether. Complete discontinuation of the hunt would result in the loss of recreational opportunity of about 200 hunter days per year (i.e., four hunting days with a maximum of 50 hunters each). Similarly, reduction of the hunting area to Area A would likely reduce the recreational opportunity to about 100 hunter days per year, as only about half the original area would remain open to hunters.

The decision whether to continue hunting in any of the area retained by TVA would be made by the HIRC site manager. Under the Action Alternatives, Area B would be fragmented when a central portion is transferred (see Figure 4), and hunting there would probably be discontinued. Safety issues would curtail the number of hunters allowed to participate in the hunts, and this could lead to the cessation of the hunts altogether (A. Neal, site manager, TVA, personal communication, July 2001). The events of September 11, 2001, may lead to the cessation of the hunts for security reasons, under both No Action and Action Alternatives. These issues are at any time subject to review by the site manager, in conjunction with TWRA and the TVA Police. Because of the limited amount of hunting activity affected, this loss of hunting opportunity is considered to be insignificant.

An Annual Fishing Rodeo, held by TWRA and hosted by TVA, takes place on two large holding ponds located in the southeast portion of the Hartsville site. This area is separated from the proposed sale area by approximately 0.3 mile. This children's event would continue to be held at the site, regardless of which alternative is chosen. Thus, no loss of current on-site fishing opportunities is anticipated.

3.14 Cultural Resources

3.14.1 Affected Environment

Northern middle Tennessee has been an area of human occupation for the last 12,000 years. Prehistoric land use and settlement patterns vary, but short- and long-term habitation sites are generally located on floodplains and alluvial terraces along rivers

and tributaries. Specialized campsites tend to be located on older alluvial terraces and in uplands. European interactions with Native Americans associated with the fur trading industry in this area began in the seventeenth and eighteenth centuries, with the latter half of the eighteenth century marked by small skirmishes and ambushes between settlers and Native American groups. By the end of the eighteenth century, land in the Nashville Basin had been granted to veterans of the Revolutionary War. Agriculture dominated the economies of both Smith and Trousdale Counties in the nineteenth and well into the twentieth century (Maggart, 1998; Durbin, 1998). Economic activities in Smith County now center on large industry and mining of the county's rich zinc deposits (Maggart, 1998). Trousdale County remains linked to its agricultural roots, with the city of Hartsville becoming a thriving center for the loose-leaf tobacco market in the twentieth century (Durbin, 1998).

Prior to and during construction of the Hartsville Nuclear Plant, archaeological surveys were conducted within the project location. These surveys identified 40 archaeological resources (see McNutt and Weaver, 1983; McNutt and Lumb, 1987; Blanchard and Spires, 1984; McCollough, 1972; and Dickson, 1973). Several sites that could have been impacted within the project area were excavated (reported in McNutt and Lumb, 1987; McNutt and Weaver, 1983).

Archaeological sites investigated prior to and during the construction of the Hartsville Nuclear Plant area were not evaluated with respect to their potential eligibility for the National Register of Historic Places (NRHP). Given the lack of intense evaluation, TVA, in consultation with the Tennessee State Historic Preservation Officer (SHPO), determined that archaeological surveys would be required in order to identify and evaluate eligible archaeological resources.

Initially, the Area of Potential Effect (APE) included 509.6 acres of land (including Area 1 in Figure 5). Based on a preliminary field review, 165.8 acres were removed from the proposed transfer area because of the presence of previously recorded eligible archaeological sites that were identified prior to the plant's construction. A Phase I identification level survey was conducted in 343.8 acres of the remaining APE (Pietak and Wild, 2001). Survey findings revealed eligible archaeological sites within 85.1 acres of these tracts. These areas, along with a protective buffer zone, were also removed from the proposed transfer area.

After the removal of these areas from the APE, additional areas (2a-f, 476.6 acres) were added to the proposed transfer area (Figure 5). A review of the Hartsville Nuclear Plant final construction topographic map (1984) and aerial photographs taken during the plant's construction (1977-1979) indicated that Areas 2a-2c (462.7 acres) had been disturbed by extensive grading associated with the construction of the Hartsville Nuclear Plant. Subsequent field reviews verified these observations.

An additional Phase I identification level survey was conducted in Areas 2e-2f (11.4 acres) based on the observation that these areas experienced minimal disturbance during the plant construction (Pietak, et al., 2001). Survey findings indicate that no eligible archaeological sites are present in these areas. Area 2d (2.5 acres) included a

previously identified archaeological site. This site was revisited and a Phase II identification and evaluation level survey was conducted to assess the site's potential eligibility. It was determined from this evaluation that the site was not eligible for the NRHP. Areas 2d-f were all cleared for the proposed transfer. The letter from the SHPO clearing these areas for the proposed transfer appears in Appendix I.

The total area being considered for transfer is approximately 550 acres. Because of uncertainty regarding the actual areal extent of the project at the time the assessment was conducted, TVA surveyed 735.3 acres for cultural resources, inclusive of the area to be transferred.

Eight historic properties are listed on the NRHP in Smith County, and six properties are listed in Trousdale County. None of the properties are within the project APE or in the immediate vicinity.

3.14.2 Environmental Consequences

Because of the previous construction on site (cooling towers, etc.), additional visual effects to historic properties resulting from construction of the proposed industrial park are not expected. Transfer of the approximately 550 acres of land would also have no effect on archaeological sites on or eligible for the NRHP.

All findings and recommendations regarding the assessment of effect on archaeological sites on or eligible for the NRHP and areas to be cleared for transfer were conducted in consultation with the Tennessee SHPO and other consulting parties. As requested by the SHPO in his concurrence, TVA commits that should there be any inadvertent archaeological discoveries within the proposed transfer area during the construction of the proposed Hartsville Industrial Park, the applicant shall notify TVA, and TVA shall determine appropriate measures to identify, evaluate, and treat these discoveries.

3.15 Noise

Noise is basically unwanted sound, and at high levels, noise can damage hearing, cause sleep deprivation, interfere with communication, and disrupt concentration. Noise is measured logarithmically in "decibels" (dB). Due to its logarithmic scale, if a noise increases by 10 dB, it sounds as if the noise level has doubled. If a noise increases by 3 dB, the increase is just barely perceptible to humans. Often sound is measured as "A-weighted;" this filters out low frequency sounds which humans are unable to hear and is more indicative of the noise that we actually hear. In general, the Sound Pressure Level from an outdoor noise source radiates out from the source, decreasing 6 dB per doubling of distance. Thus, a noise which is measured at 80 dB 50 feet away from the source will be 74 dB at 100 feet, 68 dB at 200 feet, and 62 dB at 400 feet.

Due to the potential for sleep disruption, loud noises between 10 p.m. and 7 a.m. are normally considered more annoying than loud noises during the day. Therefore, community noise levels are often measured by the Day-Night Average Sound

Level (L_{dn}). This index is an average of noise in a 24-hour period; however, a 10 dB penalty is added to noise between 10 p.m. and 7 a.m. The USEPA has set a goal of 55 dB for L_{dn} in outdoor spaces (USEPA, 1973).

3.15.1 Affected Environment

The area surrounding the Hartsville site is rural. Nearby noise receptors consist of scattered homes. There are numerous homes along State Road 25, some of which are within 1,000 feet of the site boundary. There are no homes on River Road between State Road 25 and the TVA/Four Lakes Incubator access road, though there are homes along River Road between the TVA/Four Lakes Incubator access road and Duncan Road. Several of these homes are within 1,000 feet of the site boundary. In addition, there are four homes within 1,000 feet of the southern site boundary and a small cemetery within 2,000 feet of the site on the south side of the Cumberland River.

Background noise was surveyed at four locations near the borders of the Industrial Park site in the general directions of nearby homes on December 19-20, 2000, using a Bruel & Kjaer 2237 Integrating Sound Level Meter. The A-weighted decibel scale (dBA) was used to reflect noise that is audible to the human ear. All of the measurements were taken during the day between 7 a.m. and 4 p.m. Measurement locations are shown in Figure 5. Average background noise levels ranged from 33 to 42 dBA at Receptors 1, 2, and 3 (Table 16). These noise levels are typical of quiet, rural areas. Average noise levels at Receptor 4 were substantially higher, ranging from 38 to 65 dBA. This receptor was located adjacent to the TVA/Four Lakes Incubator access road, and the higher noise levels were due to traffic, including large industrial trucks. The lowest measurement, 38 dBA, occurred during a period without any traffic. Noise sources included natural sources, such as birds, cattle, and barking dogs, as well as man-made sources, such as road traffic and industrial equipment.

Table 16. Background Noise Levels at the Hartsville Site

Measurement Location	Minimum L_{eq}*	Maximum L_{eq}
Receptor 1	33	40
Receptor 2	37	39
Receptor 3	36	42
Receptor 4	38	65

*L_{eq} - Average A-weighted sound level (dBA)

3.15.2 Environmental Consequences

3.15.2.1 Construction Impacts

The construction of the industrial park would require equipment for excavation, such as backhoes, front loaders, bulldozers, and dump trucks; materials-handling equipment, such as cement mixers and cranes; as well as compressors, generators, and pumps. Noise generated from this type of equipment would range from 87 to 99 dBA at 30 feet (Cowan, 1994) which would be equivalent to 57 to 69 dBA at 1,000 feet. Most of the construction activities would occur during weekday, daylight hours; however, construction could occur during nights and weekends, if necessary.

Construction activities would also increase traffic on State Road 25 and River Road (see Transportation Section). Large trucks would produce noise levels around 89 dBA at 30 feet (Cowan, 1994), which is equivalent to 77 dBA at 120 feet. Since there is already substantial truck traffic using these roads to access the TVA/Four Lakes Incubator, the temporarily increased noise levels along State Road 25 and River Road due to construction activities are not expected to adversely affect nearby residents.

The development of the proposed industrial park would require the construction of a new sewer line along State Road 25 and River Road. This would require equipment similar to that used for the construction of the site, such as backhoes, front loaders, bulldozers, and other heavy equipment. Similarly, the sewer line construction would likely generate noise levels ranging from 87 to 99 dBA at 30 feet (Cowan, 1994), which would be equivalent to 75 to 87 dBA at 120 feet. This is expected to temporarily increase noise levels at homes along State Road 25 between River Road and the town of Hartsville. There are no homes along the portion of River Road that would be affected.

Although certain areas would experience noticeable noise increases during construction, due to the temporary and episodic nature of construction, and because most of it would be during weekday daylight hours, the construction noise is not expected to have a significant effect on nearby residents.

3.15.2.2 Operational Impacts

The development of an industrial park would generally increase noise levels, although the amount of the increase would depend on many factors, including the type of industry, the size of the plant, the use of noise control devices, the number of employees, and the amount of increased traffic.

The U.S. Department of Housing and Urban Development's (HUD) guidelines set acceptable noise levels for various land use categories (Table 17). Following these guidelines, areas of the industrial park to be used for office buildings should not exceed an L_{dn} of 75 dBA, and areas to be used for wholesale, industrial, manufacturing, and utilities should not exceed an L_{dn} of 80 dBA. Additionally, under the guidelines, development of the park should not cause the L_{dn} at a nearby residence to exceed 65 dBA. TVA considers that any noise impacts exceeding these guidelines would be

significant and require mitigation. Though the types of industries targeted for the park, as discussed in Section 2.3.2, are not generally producers of high noise levels, TVA commits to require covenants to be placed on development requiring noise levels within the park and caused by the park to meet the HUD guidelines to avoid potentially significant impacts.

Table 17. U.S. Department of Housing and Urban Development Land Use Compatibility Guidelines[1]

Land Use Category	Clearly Acceptable	Normally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential	<60	60-65	65-75	>75
Livestock farming	<60	60-75	75-80	>80
Office buildings	<65	65-75	75-80	>80
Wholesale, industrial, manufacturing & utilities	<70	70-80	80-85	>85

[1] dBA L_{dn}
Source: HUD (1985)

The development of an industrial park on this site would likely increase traffic on State Road 25 and River Road north of the site to State Road 25, as discussed in Section 3.10.2. Since State Road 25 and River Road north of the TVA/Four Lakes Incubator access road already have considerable truck traffic, the increase in traffic would not cause a significant increase in noise levels along these roads.

Although the noise from the industrial park and the additional traffic would generally be noticeable, TVA expects that, with the given commitments, the operational noise from the industrial park is not expected to have significant impacts on nearby residents.

3.16 Hazardous, Solid, and Special Wastes

3.16.1 Affected Environment

The Smith County Landfill is located near Carthage, Tennessee, approximately 10 miles from the site of the proposed industrial park. This landfill currently receives approximately 3,400 tons per month of solid waste (Joyce Barnes, Smith County Executive's Office, personal communication). This landfill is currently approximately 48 percent full and has capacity for an additional 5.8 years of operation. Smith County is currently seeking a permit for an expansion to this landfill which would give them an additional 20-25 years of operating capacity.

3.16.2 Environmental Consequences

Since the industrial park would be new and no industries have announced their intentions to locate there, it is impossible to quantify the direct impacts of their future

waste streams. However, it is possible to describe the probable types of waste and their most probable impacts on the environment.

Hazardous Wastes - By regulation, all hazardous wastes must be rendered nonhazardous and disposed of under stringent tracking and handling requirements. Only 4 percent of the wastes in Tennessee designated as hazardous are solid in nature. Most hazardous substances are in wastewater and are not classified by the Resource Conservation and Recovery Act (RCRA) as hazardous wastes. Wastewater discharges are regulated by the Clean Water Act and managed under NPDES permits. The wastewater portion would be pretreated to nonhazardous levels and then handled with the other wastewater and discharged through the POTW. The solid portion of the hazardous wastes would be treated to nonhazardous levels and probably disposed of at the nearest permitted hazardous waste landfill site. For wastes to be treated on site, the company would be required to obtain an RCRA permit for a Treatment, Storage, Disposal Facility (TSDF). Otherwise, the wastes must be shipped to a permitted TSDF. Because these regulations require mandatory mitigation of the hazardous nature of the wastes, hazardous wastes generated by industries locating in this industrial park that comply with these regulations would not have a significant impact on the environment.

Solid Waste - Solid waste from industrial processes such as those resulting from most commercial and light to medium type industries can be disposed of in Class I or Class II landfills, such as the Smith County Landfill. These landfills have been designed to restrict the migration of detrimental materials from the landfills into the environment. As described above, the Smith County Landfill would have capacity to handle expected volumes of solid wastes. If solid wastes were not sent to the Smith County Landfill, pertinent laws and regulations would require that they be sent to another permitted facility. Solid wastes which are managed and disposed of in accordance with applicable regulations and permits would not have a significant adverse impact on the environment.

Certain types of wastes resulting from the construction of commercial or industrial facilities would probably be disposed of in a Class I, II, or IV landfill. These types of construction wastes are typically nondegradable and inert. It is possible that these wastes would be buried on site. Because of the inert nature of these types of construction wastes, these practices would not adversely impact the environment. Other wastes which could be generated by construction activities would be required by law to be managed and disposed of according to their physical and chemical composition. Proper management and disposal of these construction wastes, again, would not have a significant impact on the environment.

Special Wastes - Special wastes are solid wastes resulting from industrial processes that meet the regulatory definition of special wastes and are not hazardous wastes. Examples are air filters from paint booths with cured coating material on them and sludges from wastewater treatment systems. Industries in the proposed industrial park would be expected to either recycle the material or dispose of special wastes in permitted Class I or II landfills. As above, waste management and disposal in

accordance with applicable regulations and permits would not have a significant adverse impact on the environment.

3.17 Cumulative Impacts

TVA has determined that cumulative impacts of the proposed sale of the property, either as Alternative 2 or Alternative 3, are not expected to be significant. Property with known sensitive ecological resources would not be transferred. The resources which would be affected are common in the area, and proposed mitigation measures would limit the impacts further. So impacts of the development of the property, itself, and the construction of electric, gas, water, and sewer services are expected to be small. The site has been intended for development since the proposal to construct the Hartsville Nuclear Plant and is already heavily disturbed and partly developed, so further development as an industrial park would avoid impacts at any greenfield sites (the likely alternative, given the large amount of undeveloped land in the area suitable for industrial parks). Current air and water quality are generally good, and federal and state regulation of air and water pollution is designed to maintain environmental quality by limiting cumulative impacts of additional sources of emissions and wastewater. The commitment to limit manufacturing facilities to the light and medium categories would also minimize air quality impacts of emissions from the park as a whole.

4.0 COMMITMENTS TO MINIMIZE ADVERSE IMPACTS OF THE PROPOSED ACTION

The following environmental commitments have been identified for the Preferred Alternative (Alternative 3). These environmental and resource protection criteria would be included in the land transfer deed as real covenants that attach to and run with the land and will be binding on any party who may hereafter come into ownership or possession of the land. Adherence to these commitments during construction and operation of the proposed industrial site and associated water and sewer routes would minimize the potential for environmental impacts.

- The following uses are permitted on the Hartsville site that is the subject of this land transfer:

    1. Light and medium manufacturing, assembling, and warehousing for distribution purposes.

    2. Transportation and service facilities

    3. Retail sale of products manufactured or handled at wholesale by the owner or lessee.

    4. Recreation and training facilities providing service to the users of the transferred land.

    5. Retail sale of food, beverage, and other such convenience items to persons employed on the property, as long as these items are not offered for sale to the general public.

    6. Temporary structures necessary and incidental to any construction activity.

    7. Utility facilities necessary for the provision of public services and pollution control facilities associated with site use.

    8. Other industrial uses not listed above, subject to TVA's prior review and approval.

- The following uses are expressly prohibited:

    1. Temporary or permanent residential use.

    2. Retail sale of products not manufactured or handled at wholesale by the owner or lessee.

    3. Wreck, junk, or commercial waste processing; salvage yards; or similar activities (except as incidental and integral to permitted uses).

    4. Any other purpose other than such as may be expressly approved by TVA.

- No industrial site owner shall (1) fill or place any structures, fences, or other obstructions of any kind in, on, or across any portion of the land that lies within the limits of the 100-year floodway, or (2) place any structures of any kind on, in, or across any portion of the land lying outside said 100-year floodway (but within the 100-year floodplain) that has not been filled to or above elevation 470 msl.

- Areas in the 100-year floodplain where underground sewer and waterlines have been laid to serve the Hartsville Industrial Park will be returned to preconstruction conditions after completion of the sewer or waterline project, and there shall be no connections to these lines which would serve development in a 100-year floodplain, other than in the proposed industrial park.

- A minimum 50-foot riparian buffer shall be maintained along each side of the main channel of the unnamed creek located on the Hartsville site.

- Wetlands delineated in Figure 3 of this EA shall not be disturbed by construction or other activity undertaken at the Hartsville site.

- The exteriors of buildings to be located in the park shall incorporate structural arrangements and color schemes that will limit visual discord with the natural background.

- Nighttime lighting for the industrial park and buildings located in it shall incorporate features for limiting in the increase in brightness of the nighttime sky.

- The front, rear, and sides of all buildings shall be visually screened from adjacent parcels and off-site property, using methods such as architectural fencing, berms, and plantings, individually or in combination.

- Noise levels in areas of the industrial park used for office buildings shall not exceed an L_{dn} of 75 dBA, and in areas to be used for wholesale, industrial, manufacturing, and utilities shall not exceed an L_{dn} of 80 dBA. Further, noise generated in the industrial park shall not cause the L_{dn} at any nearby residence existing at the time of the land transfer to exceed 65 dBA .

In addition, TVA notes the following general requirements for the project:

- No modification of the existing barge facility (including dredging to restore its usefulness) or other riverfront construction shall be undertaken at the Hartsville site without prior TVA approval.

- All land disturbance shall be conducted using BMPs to control erosion and sedimentation.

- Should there be any inadvertent archaeological discoveries within the proposed transfer area during the construction of the proposed Hartsville Industrial Park, the applicant shall notify TVA, and TVA shall determine appropriate measures to identify, evaluate, and treat these discoveries.

5.0 CONSULTATION AND COORDINATION EFFORTS

Public participation and interagency coordination/review are part of the NEPA process during the preparation of an EA. Public and appropriate federal, state, and local agencies were invited to provide input during the scoping process and were provided a copy of the draft EA for review and comment. Section 5.1 describes the scoping process to determine the content of the EA, and Section 5.2 discusses the intergovernmental and public review of the draft EA.

5.1 Scoping

One activity in EA preparation is the description of what the evaluation will cover, or rather, the scope of the EA. An important part of this "scoping" process is the solicitation of public participation in the determination of the issues to be evaluated and the inclusion of that information in the evaluation process. This section summarizes TVA's efforts to solicit public comments which helped to define the content of the EA.

This proposed project has been a public project from its inception. Members of the local communities had seen the largely undeveloped site of the proposed nuclear plant as a suitable site for an industrial and office park which would help remedy the area's economic problems. Local officials and an advisory committee have been involved from the beginning. On June 5, 2000, members of the local communities and elected representatives met with TVA to present the idea of transferring about 550 acres of the site to a public/private entity for the park. The members of this advisory committee are listed in Appendix D.

TVA formally began the NEPA process for this project by issuing an NOI in the *Federal Register* on December 27, 2000 (TVA, 2000). This NOI provided information about how comments could be submitted by e-mail, phone, and regular mail. It requested that comments on the project be submitted within 30 days from the NOI, which was through January 26, 2001. A copy of this NOI is in Appendix B. Information from the NOI, along with maps showing the site and land being considered, were also posted on TVA's Internet site March 30, 2001, at *http://www.tva.gov/environment/reports/hartsville.htm*. The contents of this Internet site on March 30, 2001, are contained in Appendix C. TVA also posted a copy of the draft EA and will post a copy of this final EA on this site.

The proposed project was announced and comments requested through a paid announcement in local newspapers. These newspapers included the weekly *Hartsville Vidette*, the *Carthage Courier*, and the *Nashville Tennessean*. These paid announcements were published on January 18, 2001. A copy of the paid newspaper announcement is contained in Appendix C.

Also, TVA sent letters which requested comments to the owners and operators of businesses leasing buildings on the site, all persons who have requested permits for hunting on the site, and the landowners from whom TVA bought the site (who have life

estates for agricultural use of the tracts they sold). Copies of the letters sent to the lease holders and the hunters are contained in Appendix E.

Comments received from all of the above efforts were noted and later reviewed to help identify environmental issues that should be addressed in the EA, as well as those minor issues which do not warrant detailed evaluation. Several comments were received from hunters, who objected to the loss of the hunting resource. Copies of the comments received are contained in Appendix F. This concern was evaluated and this impact was determined to be insignificant as detailed in Section 3.13.

TVA contacted various federal and state agencies notifying them of TVA's intent to prepare an EA for the proposed project and to request comments on the draft EA.

Federal agencies were:

- U.S. Environmental Protection Agency, Region IV
- U.S. Army Corps of Engineer, Nashville District
- U.S. Department of the Interior
    - Office of Environmental Policy and Compliance
    - Fish and Wildlife Service
- U.S. Department of Agriculture
    - Natural Resource Conservation Service
    - Rural Utilities Service
    - Rural Development
    - Rural Housing Service
- U.S. Geological Survey, Water Resources Division
- U.S. Economic Development Administration
- Appalachian Regional Commission

State agencies included:

- Tennessee Department of Agriculture
- Tennessee Department of Economic and Community Development
- Tennessee Department of Environment and Conservation
- Tennessee Wildlife Resources Agency
- Tennessee State Historic Preservation Officer
- Tennessee Department of Transportation
- Tennessee Historical Society

Regional agencies included:

- Mid-Cumberland Council of Governments
- Trousdale County
- Smith County
- The towns of Hartsville and Carthage
- Trousdale County Historian

- Smith County Historian

Indian tribes included:

- The Eastern Band of the Cherokee Indians
- The United Keetoowah Band of the Cherokee Indians
- The Cherokee Nation of Oklahoma
- The Muskogee (Creek) Nation of Oklahoma
- The Absentee-Shawnee Tribe of Oklahoma
- The Eastern Shawnee Tribe of Oklahoma
- The Poarch Band of Creek Indians

The TWRA responded with a letter dated June 26, 2001 (see Appendix I), which recommended protection of riparian buffer zones and early successional habitat that is potential habitat for neotropical songbirds and farm game wildlife. Nearly all of the riparian buffer zone bordering the Cumberland River, and more than half of the land designated as potential neotropical songbird habitat on the map provided by TWRA (see Appendix I) has since been removed from consideration for transfer. The riparian corridor surrounding Dixon Creek near the eastern side of the HIRC site is also not under consideration for transfer. As discussed in Section 4, riparian corridors would be protected in any site development plan.

As a result of the scoping process, the following issues pertinent to the proposed action and the comparison of alternatives were identified and addressed in this EA:

- Air Quality
- Groundwater
- Surface Water Quality
- Floodplains
- Terrestrial Ecology
- Aquatic Ecology
- Sensitive Aquatic Animals
- Terrestrial Threatened and Endangered Species
- Wetlands
- Socioeconomics
- Transportation
- Prime Farmland
- Visual Quality
- Managed Areas and Recreation, including Hunting
- Cultural Resources
- Noise
- Hazardous, Solid, and Special Wastes

5.2 Lead and Cooperating Agencies

TVA is the lead agency in preparing this EA. No agencies requested or were invited to be cooperating agencies.

5.3 Comments Received on Draft Environmental Assessment

The draft EA was released on October 19, 2001. It was placed on TVA's Web site and was provided to the same individuals, Indian tribes, and agencies who were requested to provide comments on the scope, as well as to those commenters on the scope who requested a copy, and to the Tennessee Conservation League.

The Four Lake Regional Industrial Development Authority and the U.S. Fish and Wildlife Service, Cookeville Field Office, sent letters with comments on the draft EA. In an October 24, 2001, letter, the Industrial Development Authority expressed support for the proposed transfer due to the positive economic impacts expected. TVA acknowledges this comment. In a December 17, 2001, letter, the Fish and Wildlife Service agreed with the draft EA's description of fish and wildlife resources and assessment of impacts on those resources within the project impact area. They recommended that Alternative 2 be implemented and that public recreational opportunities be continued in the undeveloped areas. They also recommended that an undisturbed 100-foot buffer zone be kept along both sides of all creeks and around all wetlands, and that a 300-foot buffer zone be kept along the Cumberland River. The only exception should be for utility crossings, which should be perpendicular to the creeks. In response, TVA acknowledges the importance of minimizing impacts to wetlands and fish and wildlife resources. However, we intend to pursue Alternative 3 due to the greater economic benefits of coordinated development of an industrial park. We expect the routine use of BMPs and the specific commitment measures detailed in the EA would provide sufficient protection for sensitive environmental resources. There would be a 50-foot buffer along each side of the creek on the site, and the proposed site has only a very small area bordering the Cumberland River for possible utility access.

Copies of the comment letters are contained in Appendix I.

6.0 LIST OF PREPARERS

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7.2 Acronyms and Abbreviations

ADT	Average Daily Traffic
APE	Area of Potential Effect
BMPs	Best Management Practices
BWSC	Barge, Waggoner, Sumner, and Cannon, Inc.
cfs	Cubic Feet per Second
CuRM	Cumberland River Mile
dB	Decibels
dBA	A-Weighted Decibel Scale
EA	Environmental Assessment
EIS	Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
HIRC	Hartsville Investment Recovery Center
HUD	U.S. Department of Housing and Urban Development
L_{dn}	Day-Night Average Sound Level
msl	Mean Sea Level
NEPA	National Environmental Policy Act
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
PBTs	Wastewater Constituents That are Either *P*ersistent in the Environment, *B*ioaccumulate, and/or are *T*oxic
POTW	Publicly Owned Treatment Works
PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation and Recovery Act
SHPO	State Historic Preservation Officer
TDEC	Tennessee Department of Environment and Conservation
TSDF	Treatment, Storage, Disposal Facility
TVA	Tennessee Valley Authority
TWRA	Tennessee Wildlife Resources Agency
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
vpd	Vehicles per Day
WMA	Wildlife Management Area

FIGURES

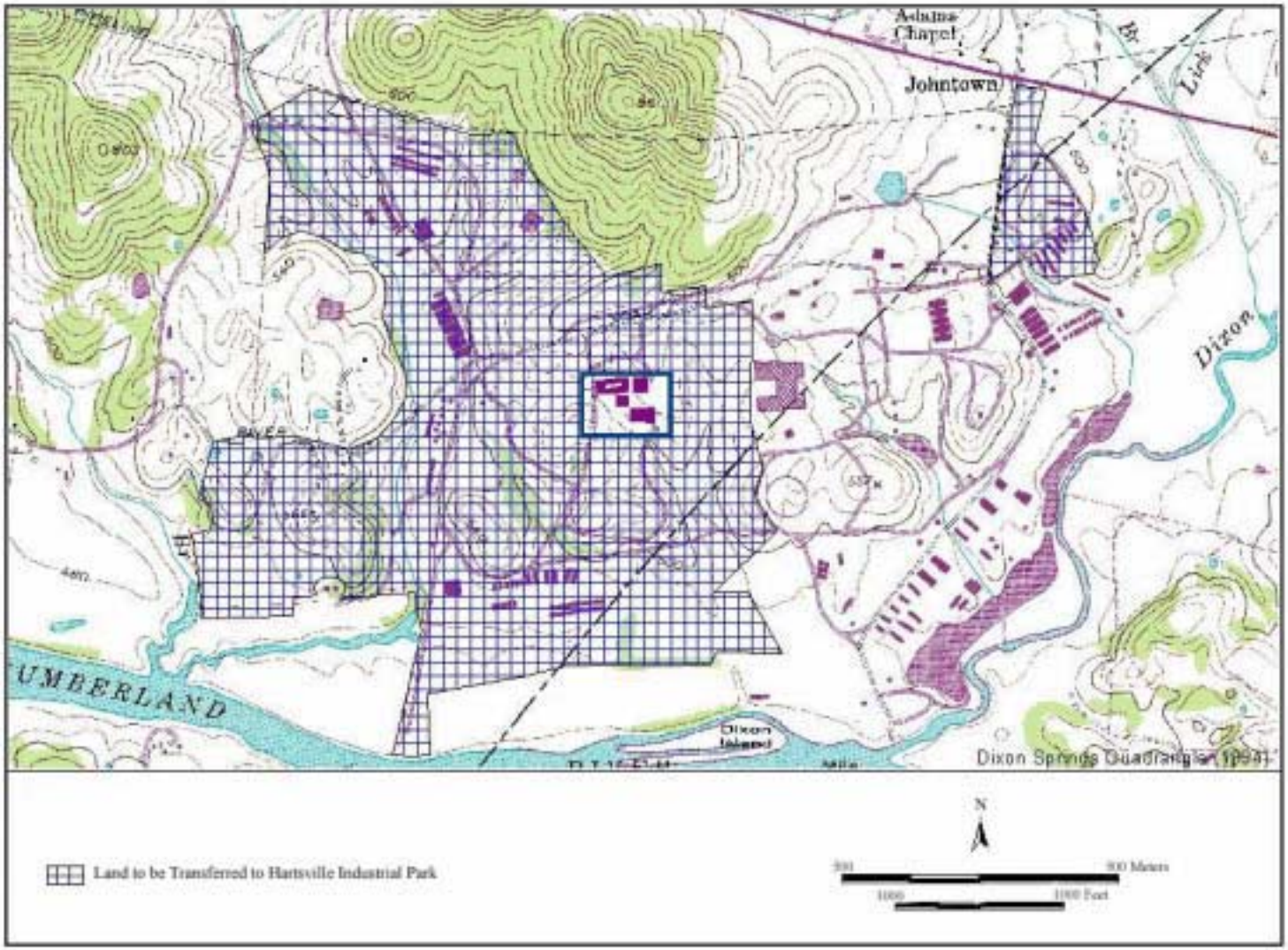


Figure 1. Proposed Area for Sale on Existing TVA Hartsville Site

Figure 2. Concept Plan

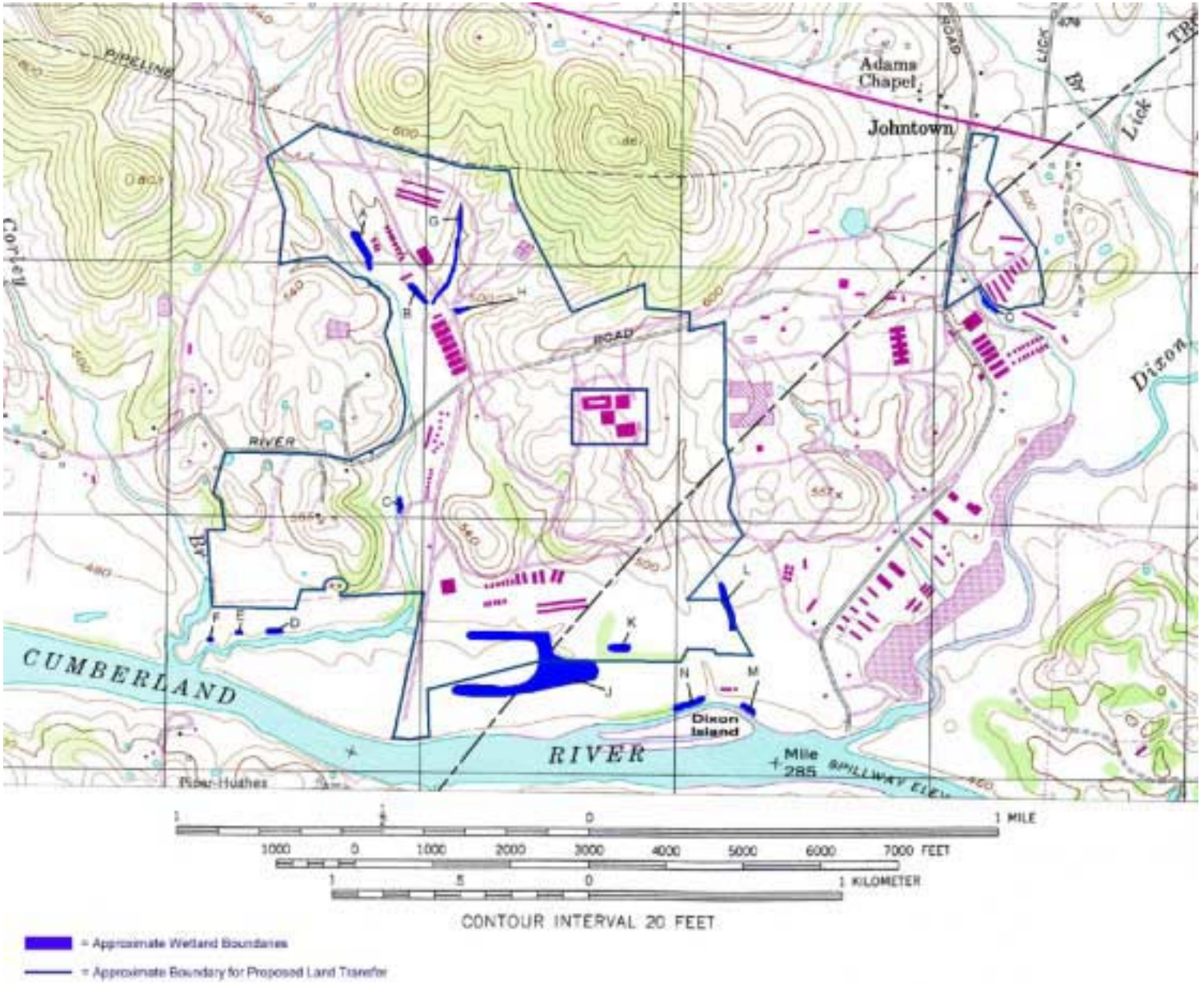


Figure 3. Identified Wetlands on Proposed Hartsville Industrial Park Site

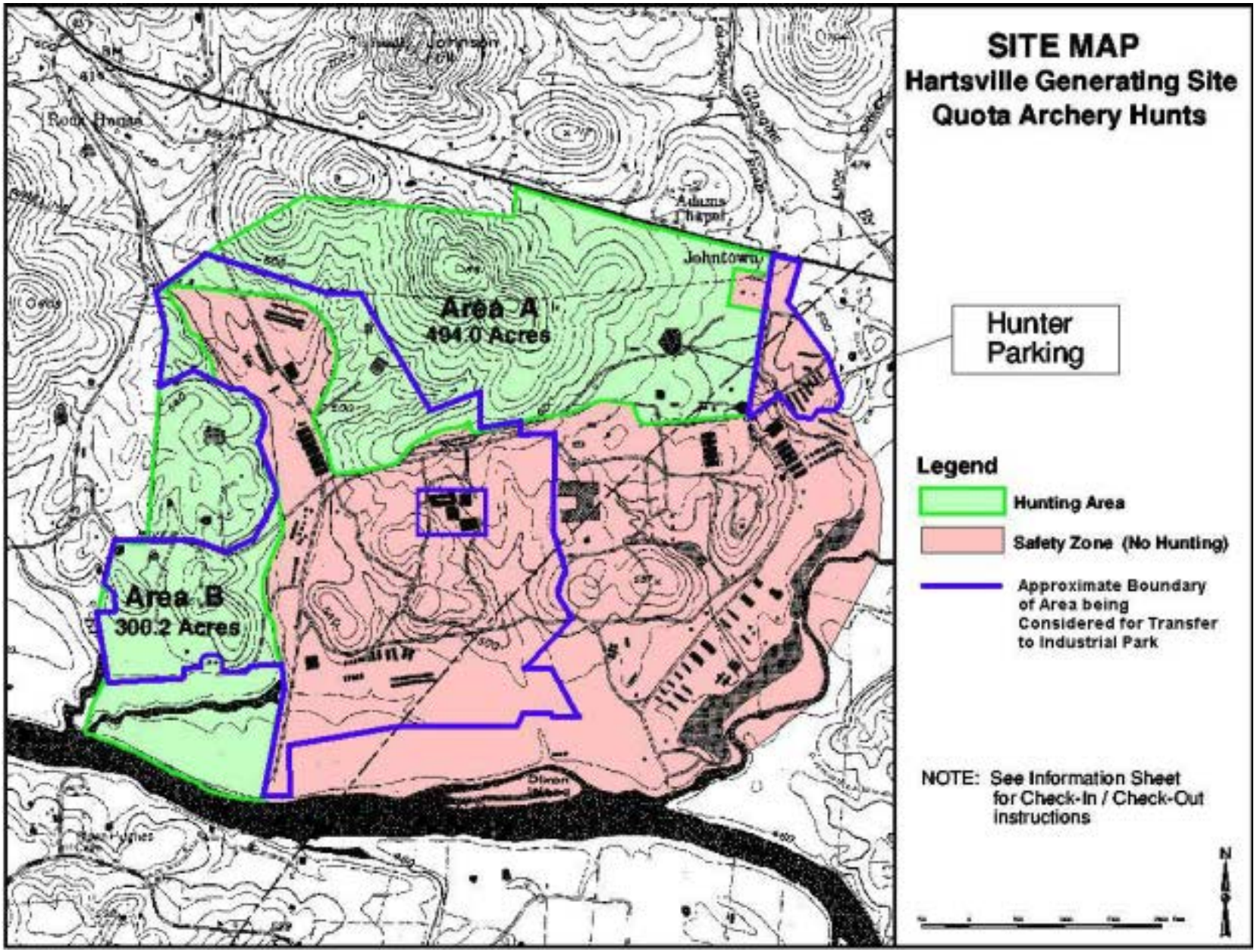


Figure 4. Hartsville Areas Open for Hunting

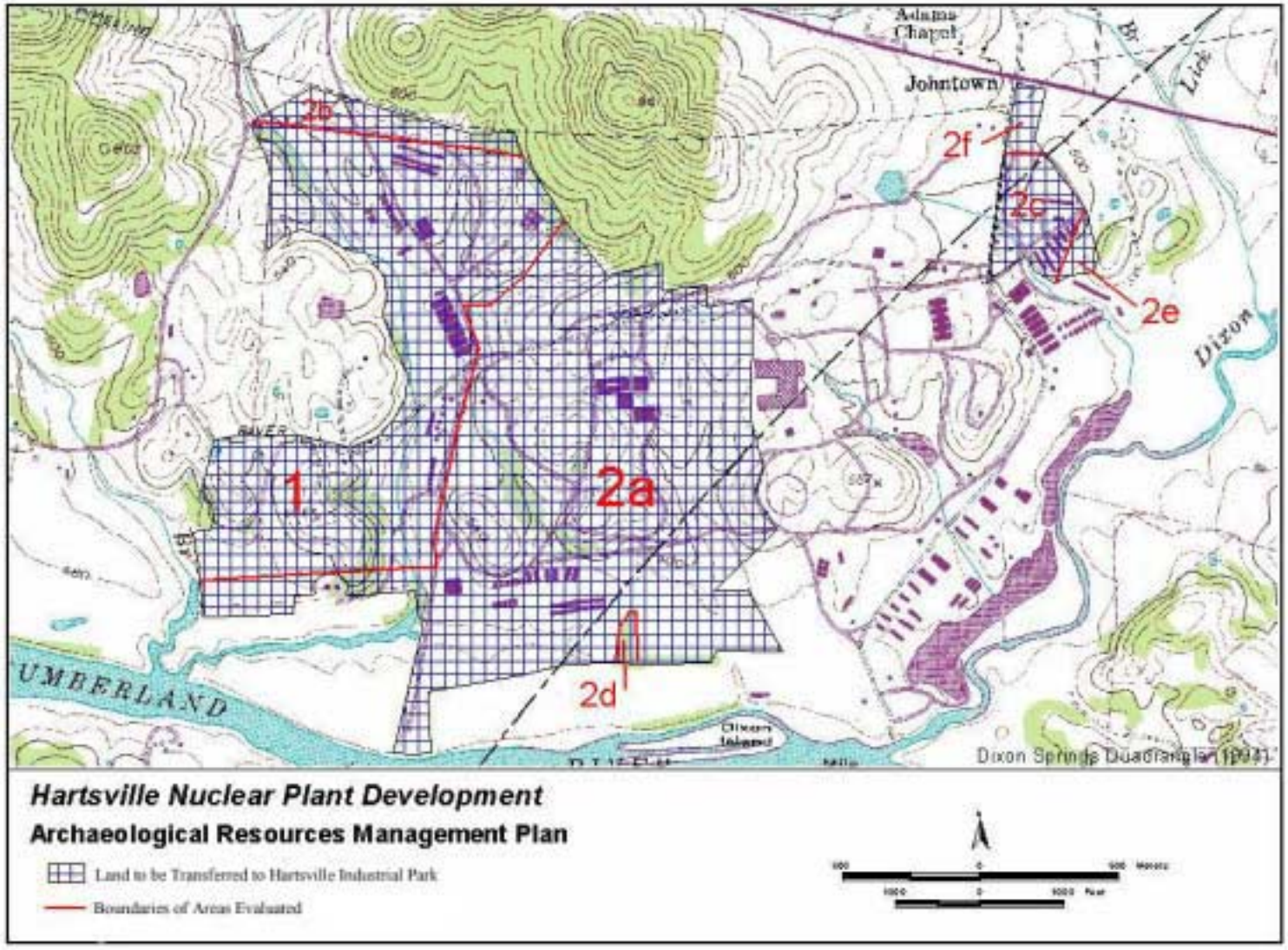


Figure 5. Archaeological Resources Management Plan

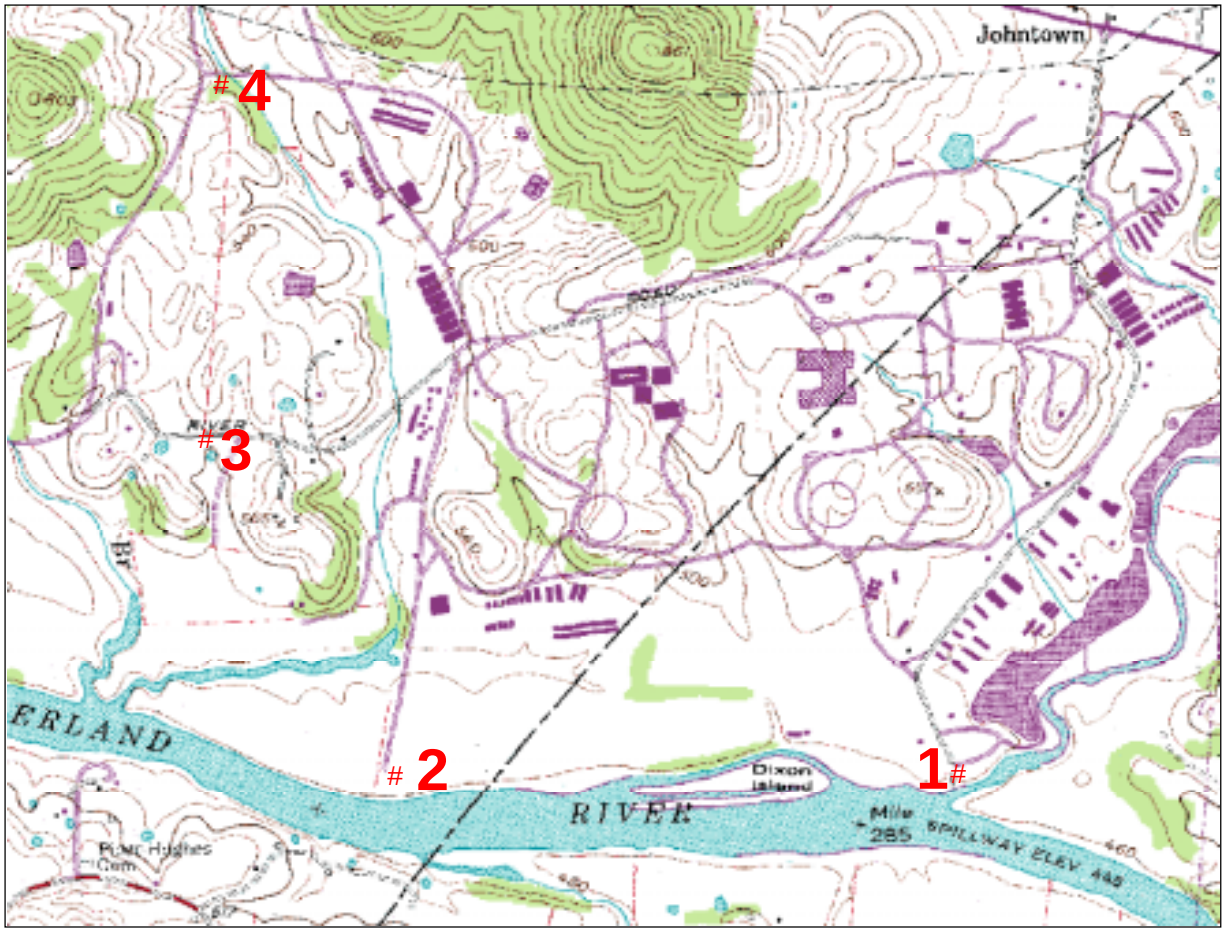


Figure 6. Noise Measurement Locations

APPENDIX A
CORRESPONDENCE CONCERNING NEW WATER AND SEWER LINES

Four Lake Regional Industrial Development Authority
POST OFFICE BOX 464 • HARTSVILLE, TENNESSEE 37074
PHONE: (615) 374-4607 • FAX: (615) 374-4608
e-mail: fourlake@aol.com

June 6, 2000

Tom Hill, P.E.
TVA/Economic Development
P.O. Box 292409, (HR2 5A)
Nashville, TN 37229-2409

Dear Tom:

Pleasure to meet you at the Hartsville project meeting yesterday.

As requested, please find enclosed a copy of the BWSC cost estimate for water and sewer. Dean Harrison is very familiar with the site — from work in the initial years of site development.

Hope this information is helpful.

Look forward to working with you on the Committee. Please let me know if I can assist in any other way.

Best regards,

Richard Walker
Executive Director

RW:tlc
Enclosure

SERVING THE MIDDLE TENNESSEE COUNTIES OF MACON, SMITH, SUMNER, TROUSDALE AND WILSON

152 Third Avenue North
Nashville, TN 37201
615 254 1500
FAX 615 255 6572
E-mail: nashville@bargewaggoner.com

BWSC Barge Waggoner Sumner & Cannon, Inc.

August 7,1998
File 930

Mr. Dick Walker
FOUR LAKES AUTHORITY
Post Office Box 464
Hartsville, Tennessee 37074

RE: PROBABLY COST FOR WATER AND SEWER SERVICE TO THE INDUSTRIAL SITE OFF STARLITE ROAD TVA PROPERTY B SIDE

Dear Mr. Walker:

Attached is a map depicting the preliminary location for the water and sewer system improvements to the proposed site and probable costs.

I have proposed a 6-inch diameter force main sewer from the proposed site to the existing sewer system on Thompson Lane, along with 1,000 LF of 12-inch diameter gravity sewer and appurtenances, and a pump station on site. Suggested water system improvements include a 12-inch diameter line that will connect to the existing line at the water tank north of the site and to the existing line on Starlite Road. Our analysis indicate a suggested budget of $522,000 for the sewer and $217,000 for the water improvements.

Should you have any question please call me at (615) 252-4409. We will be glad to review details of the improvements and discuss any suggested revisions you may have.

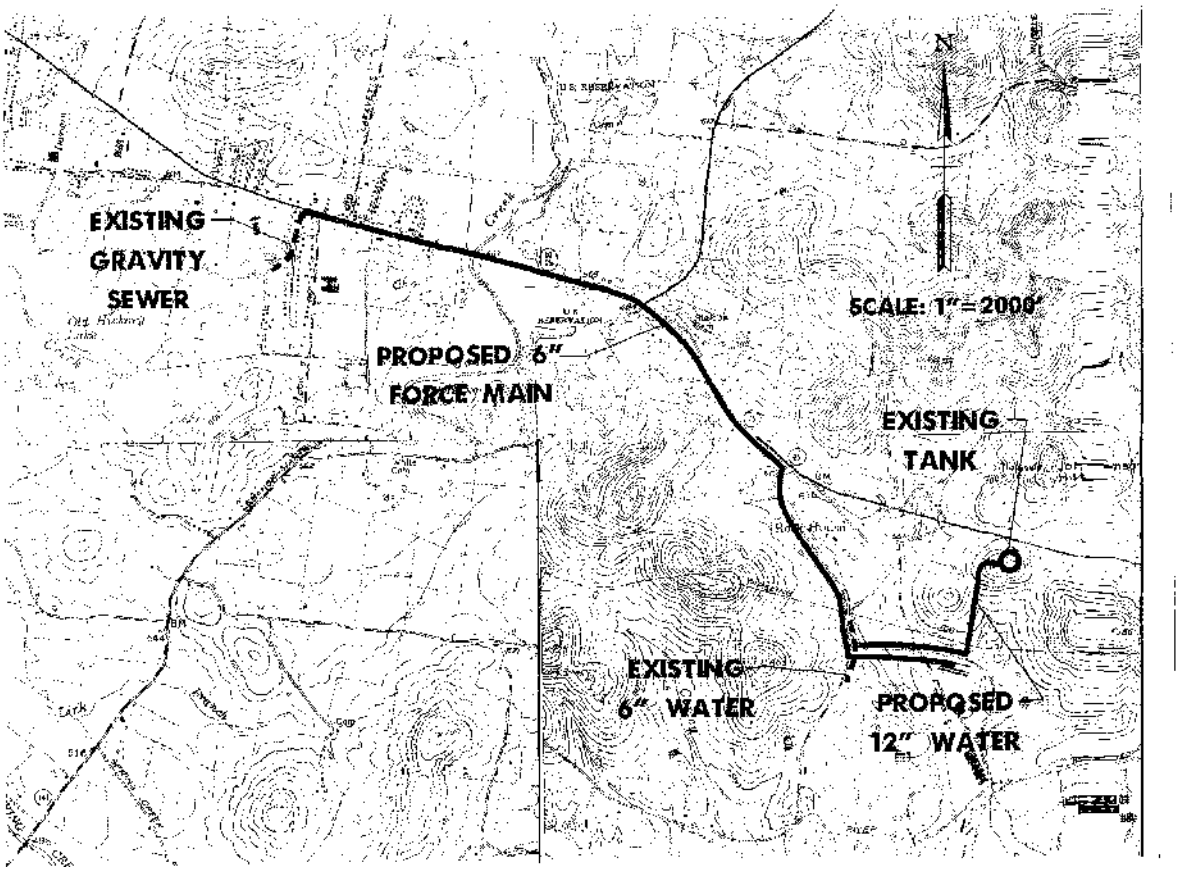
Sincerely,

Dean Harrison

smi/0807.wpd

Enclosure

cc: Steve Campbell


N
EXISTING
GRAVITY
SEWER
PROPOSED 6"
FORCE MAIN
SCALE: 1" = 2000'
EXISTING
TANK
EXISTING
6" WATER
PROPOSED
12" WATER

FOUR LAKES AUTHORITY
HARTSVILLE SEWER

Item No.	Description	Qty.	Unit	Unit Cost	Amount
1	12-inch PVC Gravity Sewer	1,000	LF	85.00	85,000
2	4' Diameter Manholes	5	EA	1,500.00	7,500.00
3	12"x 6" Tees	10	EA	150.00	1,500.00
4	6" PVC Service Pipe	600	LF	25.00	15,000.00
5	6" PVC SDR 21 Force Main	19,000	LF	12.00	228,000.00
6	Bore Jack	250	LF	85.00	21,250.00
7	Air Relief Valves and Manholes	5	EA	1,500.00	7,500.00
8	Creek Crossing	200	LF	50.00	10,000.00
9	Dosing Tank	1	LS	1,000.00	1,000.00
10	250 GPM Pump Station	1	LS	40,000	40,000
			TOTAL ESTIMATE		**$416750.00**
	Construction Estimate				416,750.00
	Engineering Design Basic Service				29,800.00
	Engineering Inspection				35,000.00
	Contingency				40,450.00
			TOTAL PROJECT BUDGET:		**$522,000.00**

FOUR LAKES AUTHORITY
HARTSVILLE WATER

Item No.	Description	Qty.	Unit	Unit Cost	Amount
1	12-inch PVC Water	6,000	LF	22.00	132,000.00
2	12-inch Butterfly Valve with Box	8	EA	1400.00	11,200.00
3	D.I. Fittings	8,000	LBS	3.25	26,000.00
4	8"x8" Tapping Sleeve and Valve	1	LS	1,600.00	1,600.00
5	6"x6" Tapping Sleeve and Valve	1	LS	1,600.00	1,600.00
6	5¼" Fire Hydrants with Valve	10	EA	1,500.00	15,000.00
			TOTAL ESTIMATE		**$187,400.00**
	Construction Estimate				187,400.00
	Engineering Design Basic Service				15,050.00
	Engineering Inspection				6,000.00
	Contingency				8,550.00
			TOTAL PROJECT BUDGET:		**$217,00.00**

APPENDIX B
NOTICE OF INTENT
FEDERAL REGISTER, DECEMBER 27, 2000

TENNESSEE VALLEY AUTHORITY

Environmental Assessment or Environmental Impact Statement on Proposal to Transfer 710 Acres at Site of the Previously Proposed Hartsville Nuclear Plant, Trousdale and Smith Counties, Tennessee

AGENCY: Tennessee Valley Authority (TVA)

ACTION: Notice of Intent

SUMMARY: Members of the local communities in Trousdale and Smith Counties, Tennessee have requested TVA to transfer 710 acres (about 287 hectares) of land within the site of the formerly proposed Hartsville Nuclear Plant to a public/private entity for industrial and office development. TVA will prepare an environmental assessment (EA) or environmental impact statement (EIS) that assesses the impacts of the transfer. We are inviting comments concerning the scope of the issues and the alternatives that should be addressed in the EA/EIS.

TVA will begin by developing an EA for the proposed transfer. In the event that information gathered or analyses conducted in preparing this EA indicate that the proposal could have a significant impact on the environment, the agency will prepare an EIS. If TVA decides to prepare an EIS, the scoping process now underway for the EA will be used for the EIS and will not be repeated.

HOW AND WHEN TO COMMENT: Send written comments to Peter K. Scheffler, Tennessee Valley Authority, 400 West Summit Hill Drive, Knoxville, Tennessee, 37902-1499. Send comments by e-mail to pkscheffler@tva.gov. You may comment by telephone to TVA's automated voice mail system at 1-800-TVA-LAND (882-5263). Mailed comments should be postmarked no later than 30 days following publication of this notice in the *Federal Register* to ensure consideration. E-mailed and telephoned comments should be made no later than 30 days following publication to ensure consideration.

FOR FURTHER INFORMATION CONTACT: You can find information on TVA's web site at www.tva.gov/environment/reports. For basic project information you can also contact Michael A. Montgomery, Tennessee Valley Authority, P.O. Box 292409, Nashville, TN, 37229-2409; 615/232-6053; mamontgomery@tva.gov. For information on the environmental review, you can contact Charles L. McEntyre, Tennessee Valley Authority, 1101 Market Street, HB 2A, Chattanooga, TN, 37402-2801; 423/751-4123; clmcentyre@tva.gov.

SUPPLEMENTAL INFORMATION

Background

TVA acquired 1,940 acres (about 785 hectares) of land in Trousdale and Smith Counties, Tennessee, in the late 1960s and early 1970s as a site on which to construct a nuclear power plant. The site is located on the Cumberland River on the north shore of Old Hickory Reservoir at approximate river mile 285. The town of Hartsville is about 5 miles (8 kilometers) northwest of the site, and Nashville is about 40 miles (about 64 kilometers) southwest.

TVA prepared an EIS for the proposed nuclear plant and made it available to the public on May 23, 1975. Following completion of the EIS, TVA began construction of the plant, but did not complete it. TVA has used some of the buildings on the site for storage and has leased other buildings for industrial activity.

In the years since the plant construction was discontinued, the pace of economic growth in the counties around the site has been slow, and high unemployment and low wages continue to be problems. Members of the local communities have seen the largely undeveloped site of the proposed nuclear plant as a suitable site for an industrial and office park which would help remedy the area's economic problems. On June 5, 2000, members of the local communities and elected representatives met with TVA to present the idea of transferring 710 acres (about 287 hectares) of the site to a public/private entity for the park. The requested property lies along the western edge of

the nuclear plant site and straddles the Trousdale/Smith County line. At the request of the communities, TVA prepared a conceptual plan to evaluate the feasibility of the requested property as an industrial/office park from an engineering standpoint. A copy of the conceptual plan is shown on TVA's web site at www.tva.gov/environment/reports and can be obtained from Mr. Montgomery or Mr. McEntyre.

Proposed Issues To Be Addressed

The EA/EIS will describe and evaluate the impact of the proposed industrial/business park on the existing natural, cultural, and socioeconomic resources and conditions in the project vicinity. Specific issues will include air quality, water quality, terrestrial and aquatic life, endangered and threatened species, wetlands, floodplains, historic and archaeological resources (particularly historic properties listed or eligible for listing in the National Register of Historic Places), jobs, traffic, and existing use of the park site for hunting and business activity.

Alternatives

The EA/EIS will evaluate the impact of reasonable alternatives. The alternatives now being contemplated are the transfer of the 710 acres as requested by the communities, the transfer of individual tracts when requested for specific purposes, and the no-action alternative. TVA will take into account the potential impacts of the alternatives on the natural, cultural, and socioeconomic resources and conditions, together with engineering and economic considerations, to select a preferred alternative. The preliminary identification of reasonable alternatives and environmental issues in this notice is not meant to be exhaustive or final.

Scoping Process

Scoping, which is integral to the EA/EIS process, ensures that: (1) all pertinent issues are identified early and properly studied, (2) issues of little significance do not consume substantial time and effort, (3) the draft EA/EIS is thorough and balanced, and (4) delays caused by an inadequate EA/EIS are avoided. TVA's NEPA procedures require that the scoping process begin soon after a decision is made to prepare an EA or EIS,

to provide an early and open process for determining the scope and identifying the significant issues related to a proposed action.

The scoping process for this review includes opportunities for both public and interagency input. In addition to this notice requesting written comments, TVA is requesting comments by publishing a notice in area newspapers and is placing a notice on the TVA web site at www.tva.gov/environment/reports. Also, TVA is distributing information to and requesting comments from the owners and operators of businesses leasing buildings on the site, all persons who have requested permits for hunting on the site, the landowners from whom TVA bought the site (who have life estates for agricultural use of the tracts they sold), and other parties who have expressed interest in similar TVA activities in middle Tennessee. The public is being asked to submit comments on the scope of this EA/EIS no later than 30 days after publication of this notice or they receive information through one of the other means.

TVA is also requesting comments from federal, state, and regional agencies, and Indian tribes. The federal agencies identified at this time for inclusion in the interagency scoping are the U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, and the U.S. Fish and Wildlife Service. State agencies include the Tennessee Department of Economic and Community Development, Tennessee Department of Environment and Conservation, Tennessee Wildlife Resources Agency, the Tennessee State Historic Preservation Officer, and the Tennessee Commission of Indian Affairs. Regional agencies include the Mid-Cumberland Council of Governments, Trousdale County, Smith County, and the towns of Hartsville and Carthage. Indian tribes include the Eastern Band and United Keetoowah Band of the Cherokee Indians, the Cherokee Nation of Oklahoma, the Muskogee (Creek) Nation of Oklahoma, the Absentee-Shawnee Tribe of Oklahoma, the Eastern Shawnee Tribe of Oklahoma, and the Poarch Band of Creek Indians. Other agencies, as appropriate and identified, will also be included.

TVA will develop and maintain a mailing list of agencies, organizations, and other interested parties who have requested to be included in the process. TVA will also maintain a public reference file at its Highland Ridge Tower offices, 535 Marriott Drive, Nashville, Tennessee, 37214, which will include copies of all written correspondence, documents, meeting notices, agendas and summaries, etc.

After consideration of the scoping comments, TVA will develop the sets of environmental issues and alternatives to be addressed in the EA/EIS. Once the analysis of the environmental consequences of each alternative is completed, TVA will issue a draft EA/EIS for public review and comment. TVA will issue public notices announcing the availability and requesting comments in area newspapers, post information on its web site at www.tva.gov/environment/reports, and provide a copy to those who request one in their comments on the scope. If an EIS is prepared, a Notice of Availability of the draft EIS will also be published in the *Federal Register*. TVA anticipates completing the draft EA/EIS in early 2001.

If an EA is prepared, a public information meeting on the draft EA/EIS will be held if adequate public interest in such a meeting has been demonstrated. If an EIS is prepared, a public information meeting on the draft will be held, with the schedule to be announced in the Notice of Availability, the newspapers, TVA's web site, and information accompanying the copies of the EIS sent to the public.

TVA is providing this notice pursuant to the Council on Environmental Quality's regulations (40 CFR 1500 to 1508), TVA's procedures implementing the National Environmental Policy Act, and Section 106 of the National Historic Preservation Act and its implementing regulations (36 CFR Part 800).

_____ _____

Kathryn J. Jackson
Executive Vice President
River System Operations & Environment

Date

APPENDIX C, PART I
RELEVANT INFORMATION POSTED ON TVA'S INTERNET SITE
MARCH 30, 2001

http://www.tva.gov/environment/reports/index.htm

Hartsville Industrial/Business Park

TVA has received a request to transfer 710 acres of land at the site of the previously proposed Hartsville Nuclear Plant in Trousdale and Smith Counties, Tennessee, for an industrial/business park. TVA has issued a Notice of Intent in the *Federal Register* to prepare a draft environmental assessment or possibly an environmental impact statement and has solicited public comment on the scope of the environmental review of the proposal.

The Notice of Intent was published in the *Federal Register* on December 27, 2000. Information from the Notice of Intent, along with maps showing the site and land being considered, is available here. TVA expects to complete the draft environmental assessment in spring 2001 and will post a copy on this page.

http://www.tva.gov/environment/reports/hartsville.htm

Hartsville Industrial/Business Park

Proposed transfer of 710 acres for a business/industrial park at the site of the previously proposed Hartsville Nuclear Plant in Trousdale and Smith Counties, Tennessee

Summary
Members of the local communities in Trousdale and Smith Counties, Tennessee, have requested TVA to transfer 710 acres (about 287 hectares) of land within the site of the formerly proposed Hartsville Nuclear Plant to a public/private entity for industrial and office development. TVA will prepare an environmental assessment (EA) or environmental impact statement (EIS) that assesses the impacts of the transfer. We are inviting comments concerning the scope of the issues and the alternatives that should be addressed in the EA/EIS.

TVA is beginning by developing an EA for the proposed transfer. In the event that information gathered or analyses conducted in preparing this EA indicate that the proposal could have a significant impact on the environment, the agency will prepare an EIS. If TVA decides to prepare an EIS, the scoping process now under way for the EA will be used for the EIS and will not be repeated.

For further information, contact:
Charles L. McEntyre
Tennessee Valley Authority
1101 Market St. HB 2A-C
Chattanooga, TN 37401

E-mail: tvainfo@tva.gov (send message to the attention of Charles L. McEntyre. In the Subject line, type “Hartsville Transfer”).

Supplemental Information

Background

TVA acquired 1,940 acres (about 785 hectares) of land in Trousdale and Smith Counties, Tennessee, in the late 1960s and early 1970s as a site on which to construct a nuclear power plant. The site is located on the Cumberland River on the north shore of Old Hickory Reservoir at approximately river mile 285. The town of Hartsville is about 5 miles (8 kilometers) northwest of the site, and Nashville is about 40 miles (about 64 kilometers) southwest.

TVA prepared an EIS for the proposed nuclear plant and made it available to the public on May 23, 1975. Following completion of the EIS, TVA began construction of the plant, but did not complete it. TVA has used some of the buildings on the site for storage and has leased other buildings for industrial activity.

In the years since the plant construction was discontinued, the pace of economic growth in the counties around the site has been slow, and high unemployment and low wages continue to be problems. Members of the local communities have seen the largely undeveloped site of the proposed nuclear plant as a suitable site for an industrial and office park which would help

remedy the area's economic problems. On June 5, 2000, members of the local communities and elected representatives met with TVA to present the idea of transferring 710 acres (about 287 hectares) of the site to a public/private entity for the park. The requested property lies along the western edge of the nuclear plant site and straddles the Trousdale/Smith County line.

Proposed issues to be addressed
The EA/EIS will describe and evaluate the impact of the proposed industrial/business park on the existing natural, cultural, and socioeconomic resources and conditions in the project's vicinity. Specific issues will include air quality, water quality, terrestrial and aquatic life, endangered and threatened species, wetlands, floodplains, historic and archaeological resources (particularly historic properties listed or eligible for listing in the National Register of Historic Places), jobs, traffic, and existing use of the park site for hunting and business activity.

Alternatives
The EA/EIS will evaluate the impact of reasonable alternatives. The alternatives now being contemplated are the transfer of the 710 acres as requested by the communities, the transfer of individual tracts when requested for specific purposes, and the no-action alternative. TVA will take into account the potential impact of the alternatives on the natural, cultural, and socioeconomic resources and conditions, together with engineering and economic considerations, to select a preferred alternative. The preliminary identification of reasonable alternatives and environmental issues in this notice is not meant to be exhaustive or final.

Scoping process
Scoping, which is integral to the EA/EIS process, ensures that: (1) All pertinent issues are identified early and properly studied; (2) Issues of little significance do not consume substantial time and effort; (3) The draft EA/EIS is thorough and balanced; and (4) Delays caused by an inadequate EA/EIS are avoided. TVA's NEPA procedures require that the scoping process begin soon after a decision is made to prepare an EA or EIS, to provide an early and open process for determining the scope and identifying the significant issues related to a proposed action.

The scoping process for this review includes opportunities for both public and interagency input. In addition to having requested comments in the *Federal Register*, TVA sought comments by publishing a notice in area newspapers. Also, TVA distributed information to and requested comments from the owners and operators of businesses leasing buildings on the site, all persons who have requested permits for hunting on the site, the landowners from whom TVA bought the site (who have life estates for agricultural use of the tracts they sold), and other parties who have expressed interest in similar TVA activities in middle Tennessee.

TVA will also ask for comments from federal, state, and regional agencies, and Indian tribes. The federal agencies identified at this time for inclusion in the interagency scoping are the U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, and U.S. Fish and Wildlife Service. State agencies include the Tennessee Department of Economic and Community Development, Tennessee Department of Environment and Conservation, Tennessee Wildlife Resources Agency, Tennessee State Historic Preservation Officer, and Tennessee Commission of Indian Affairs. Regional agencies include the Mid-Cumberland Council of Governments, Trousdale County, Smith County, and the towns of Hartsville and Carthage. Indian tribes include the Eastern Band and United Keetoowah Band of the Cherokee Indians, the Cherokee Nation of

Oklahoma, the Muskogee (Creek) Nation of Oklahoma, the Absentee-Shawnee Tribe of Oklahoma, the Eastern Shawnee Tribe of Oklahoma, and the Poarch Band of Creek Indians. Other agencies, as appropriate and identified, will also be included.

TVA will develop and maintain a mailing list of agencies, organizations, and other interested parties who have requested to be included in the process. TVA will also maintain a public reference file at its Highland Ridge Tower offices, 535 Marriott Drive, Nashville, Tennessee 37214, which will include copies of all written correspondence, documents, meeting notices, agendas and summaries, etc.

After consideration of the scoping comments, TVA will develop the sets of environmental issues and alternatives to be addressed in the EA/EIS. Once the analysis of the environmental consequences of each alternative is completed, TVA will issue a draft EA/EIS for public review and comment. TVA will issue public notices announcing the availability and requesting comments in area newspapers, post information here on its Web site, and provide a copy to those who requested one in their comments on the scope. If an EIS is prepared, a Notice of Availability of the draft EIS will also be published in the *Federal Register*. TVA anticipates completing the draft EA/EIS in early 2001.

If an EA is prepared, a public information meeting on the draft EA will be held if adequate public interest in such a meeting has been demonstrated. If an EIS is prepared, a public information meeting on the draft will be held, with the schedule to be announced in the Notice of Availability, in the newspapers, and in information accompanying the copies of the EIS sent to the public, as well as here on TVA's Web site.

Area maps

APPENDIX C, PART II
PAID NEWSPAPER ANNOUNCEMENT

Public Notice

Members of the local communities in Trousdale and Smith Counties, Tennessee, have requested TVA to transfer 710 acres (about 287 hectares) of land within the site of the formerly proposed Hartsville Nuclear Plant to a public/private entity for industrial and office development. TVA will prepare an environmental assessment (EA) or environmental impact statement (EIS) that assesses the impacts of the transfer. We are inviting comments concerning the scope of the issues and the alternatives that should be addressed in the EA/EIS.

TVA will begin by developing an EA for the proposed transfer. In the event that information gathered or analyses conducted in preparing this EA indicate that the proposal could have a significant impact on the environment, the agency will prepare an EIS. If TVA decides to prepare an EIS, the scoping process now underway for the EA will be used for the EIS and will not be repeated.

Send comments to: Peter K. Scheffler, Tennessee Valley Authority, 400 West Summit Hill Drive, Knoxville, TN, 37902-1499, or e-mail them to pkscheffler@tva.gov. You may comment by telephone to TVA's automated voice mail system at 1-800-TVA-LAND (882-5263).

Mailed comments should be postmarked no later than 30 days following publication of this notice in this paper to ensure consideration. E-mailed and telephoned comments should be made no later than 30 days following publication to ensure consideration.

FOR FURTHER INFORMATION CONTACT: www.tva.gov/environment/reports or Charles L. McEntyre, Tennessee Valley Authority, 1101 Market Street, HB 2A, Chattanooga, TN 37402-2801; 423/751-4123; clmcentyre@tva.gov.

APPENDIX D
LOCAL ADVISORY COMMITTEE MEMBERS

	Name		Title	Company	Address	City	State	ZIP
Mr.	Billy	Bass	County Executive	Smith County	122 Turner High Circle	Carthage	TN	37030
Mr.	Alex	Fischer	Commissioner	Tennessee Department of Economic and Community Development	312 8th Avenue North	Nashville	TN	37243-0405
Mr.	Wilton	Burnett	Director, Special Projects	Tennessee Department of Economic and Community Development	312 8th Avenue North	Nashville	TN	37243-0405
Mr.	Carlyle	Carroll	Program Manager	Middle Tennessee Industrial Development Association	2108 Westwood Avenue	Nashville	TN	37212
Mr.	Paul	Thompson	Interim General Manager	Tri-County Electric Membership Corporation	P.O. Box 40	LaFayette	TN	37083-0040
Ms.	Tammy	Dixon	Marketing Manager	Tri-County Electric Membership Corporation	P.O. Box 40	LaFayette	TN	37083-0040
Mr.	Pat	Ferguson	County Executive	Trousdale County	200 E. Main, Room 6	Hartsville	TN	37074
Ms.	Eleanor	Ford	Executive Director	Hartsville/Trousdale County Chamber of Commerce	240 Broadway	Hartsville	TN	37074
The Honorable	Bart	Gordon	Congressman (6th District)	U.S. House of Representatives	P.O. Box 1986	Murfreesboro	TN	37133
The Honorable	Kenny	Linville	General Sessions Judge	Trousdale County	200 East Main Street, Room 5	Hartsville	TN	37074
Mr.	Maynard	Pate	Executive Director	Greater Nashville Regional Council	501 Union Street, 6th Floor	Nashville	TN	37219
Mr.	Christopher	Westbrook	Manager	USDA Rural Development	3322 West End Avenue, Suite 302	Nashville	TN	37203
Mr.	Bill	Shuff	Director	Middle Tennessee Industrial Development Association	2108 Westwood Avenue	Nashville	TN	37212

Name			Title	Company	Address	City	State	ZIP
The Honorable	Tommy	Thompson	District Attorney General	State of Tennessee 15th Judicial District	P.O. Box 178	Hartsville	TN	37074
Mr.	Dick	Walker	Executive Director	Four Lakes Regional Development Authority	P.O. Box 464	Hartsville	TN	37074
Mr.	Doyle	Gaines	County Executive	Macon County	Courthouse Public Square Room 201	LaFayette	TN	37083
The Honorable	Robert	Rochelle	Tennessee State Senator		109 Castle Heights Avenue, North	Lebanon	TN	37087
The Honorable	Stratton	Bone, Jr.	Tennessee State Representative		2455 Carthage Highway	Lebanon	TN	37087
Mr.	Jimmy	Stubblefield	Field Representative 6th District		Post Office Box 1986	Murfreesboro	TN	37133
Ms.	Nancy	Carman	Director	Tennessee Technology Center/Hartsville	716 McMurry Boulevard	Hartsville	TN	37074
Mr.	Frank	McKee	Field Advisor	UT County Technical Assistance Service	226 Capital Boulevard Bldg., Suite 400	Nashville	TN	37219-1804
Mr.	Sean	Gilliland	Field Representative	6th District	P.O. Box 1986	Murfreesboro	TN	37133

APPENDIX E
LETTERS TO LEASE HOLDERS AND HUNTERS

NAME
ADDRESS
CITY, STATE ZIP

Dear Licensee:

Enclosed is a copy of a Public Notice regarding the proposed transfer of approximately 710 acres of TVA's Hartsville site for development as an industrial park. This was recently published in the local newspapers, and you are receiving this directly because you have an existing license at TVA's Hartsville site.

If you have any comments or questions about the scope of environmental issues or alternatives which should be addressed related to this transfer, please contact TVA according to the enclosed Public Notice.

If you have non-environmental questions, please contact Tony Hopson either by email at afhopson.tva.gov or by phone at (865) 632-2503.

Sincerely,

Charles McEntyre
Environmental Engineer

Enclosure

NAME
ADDRESS
CITY, STATE ZIP

Dear Hunter:

Enclosed is a copy of a Public Notice regarding the proposed transfer of approximately 710 acres of TVA's Hartsville site for development as an industrial park. This was recently published in the local newspapers, and you are receiving this directly because you have applied for a hunting permit at TVA's Hartsville site in the past.

If you have any comments or questions about the scope of environmental issues or alternatives which should be addressed related to this transfer, please contact TVA according to the enclosed Public Notice.

Sincerely,

Charles McEntyre
Environmental Engineer

Enclosure

APPENDIX F
COMMENTS RECEIVED AND TVA REPLIES

COMMENT

NAME: Scott Spicer

DATE: February 2

ADDRESS:

TELEPHONE # 865 977-6588

E MAIL ADDRESS:

ISSUE: Hartsville

QUESTIONS/COMMENTS: My mother works for TVA and I am a law enforcement officer in Blount County. I was able to go out there and hunt there and is a great place. I want to say Richard Moran does a great job and I think it would be a great mistake to do away with this recreation/hunting land for industrial purposes. I would like someone to call me about this project and I speak in opposition of this project and I think I speak for a lot of people.

TVA REPLY

I called Mr. Spicer as requested on February 23, 2001. No one answered the phone. I left the following message on the answering machine:

> Thank you for your input. We are currently preparing an Environmental Assessment, as required by the National Environmental Policy Act, to evaluate options for this proposed action. Your feedback will be considered as we prepare this Environmental Assessment.

Charles McEntyre, PE, CHMM

COMMENT

From: BowHuntETN@aol.com[SMTP:BowHuntETN@aol.com]
Sent: Friday, January 26, 2001 7:59 PM
To: McDowell, Kim
Subject: Hey Please read this. URGENT

Hey. I have hunted on the land that is for sale in Trousdale County before and I seriously don't agree with you all selling the land and not even letting the public vote on this. We pay the taxes that pay for the upkeep of all TVA land and it is downright wrong to sell the land without us deciding. I wish the dang government would learn how to run things and listen to persuasive arguments. And another thing I wanted to tell you is that you need to seriously work on your site because the navigation is pitiful. Thank you. Landon

TVA REPLY

From: McEntyre, Charles L.
Sent: Friday, February 23, 2001 4:20 PM
To: 'Landon'
Subject: Hartsville

Dear Sir:

Thank you for your input. We are currently preparing an Environmental Assessment, as required by the National Environmental Policy Act, to evaluate options for this proposed action. Your feedback will be considered as we prepare this Environmental Assessment.

Charles McEntyre, PE, CHMM
Senior Specialist
Environmental Engineering Services-East
Energy Research & Technology Applications
1101 Market St., HB 2A
Chattanooga, TN 37402
(423) 751-4123; fax (423) 751-8525

COMMENT

From: DeeRDawG50@aol.com[SMTP:DeeRDawG50@aol.com]
Sent: Friday, January 26, 2001 2:37 PM
To: TVAINFO
Subject: TVA Hartsville Land

I strongly object to TVA selling or leasing any land for development. The Tennessee sportsmen are losing more ground every year. The wildlife is losing habitat and pretty soon there will be none.

TVA got out of LBL and the land management business out there. Then I see where TVA spends millions upon millions of dollars for entertainment expense! What a bunch of crap! If this is public land you have absolutely no right in selling it. The land is for our enjoyment, not your damned profit!

Get a grip on this stuff and start thinking about the people in this state that actually enjoy the land for what it is, not for what money they can make from it!

TVA REPLY

From: McEntyre, Charles L.
Sent: Friday, February 23, 2001 4:16 PM
To: 'DeeRDawG'
Subject: Hartsville

Dear DeeRDawg,

Thank you for your input. We are currently preparing an Environmental Assessment, as required by the National Environmental Policy Act, to evaluate options of this proposed action. Your feedback will be considered as we prepare this Environmental Assessment.

Charles McEntyre, PE, CHMM
Senior Specialist
Environmental Engineering Services-East
Energy Research & Technology Applications
1101 Market St., HB 2A
Chattanooga, TN 37402
(423) 751-4123; fax (423) 751-8525

COMMENT

From: Jerry and Allison Barlar[SMTP:ajbarlar@yahoo.com]
Sent: Friday, January 26, 2001 10:19 AM
To: mkmcdowell@tva.gov
Subject: land sale in Hartsville

I have heard that the TVA is going to sell 710 acres in Hartsville for development. I would like to know if this is true and if so why is the TVA is doing this. Please fill free to e-mail me at ajbarlar@yhoo.com. I hope this is just a rumor because as a outdoorsman I think the state needs to keep all of the public land that we have. Thank you.

TVA REPLY

From: McEntyre, Charles L.
Sent: Friday, February 23, 2001 4:18 PM
To: 'Jerry Barlar'
Subject: Hartsville

Dear Mr. Barlar:

Thank you for your input. We are currently preparing an Environmental Assessment, as required by the National Environmental Policy Act, to evaluate options of this proposed action. Your feedback will be considered as we prepare this Environmental Assessment.

Charles McEntyre, PE, CHMM
Senior Specialist
Environmental Engineering Services-East
Energy Research & Technology Applications
1101 Market St., HB 2A
Chattanooga, TN 37402
(423) 751-4123; fax (423) 751-8525

COMMENT

Feb. 3, 2001

Charles McEntyre
Tennessee Valley Authority
1101 Market Street HB 2A
Chattanooga, TN 37402-2801

Dear Sir:

I am writing concerning TVA's Hartsville site. I would like to see the site left as a wildlife area. Wildlife areas are getting very hard to find. As a farm owner myself, I enjoy seeing the land left untouched. We're developing too many areas and are running out of areas for our children to enjoy. I hope you consider my opinion.

Sincerely,

Vann Smith

TVA REPLY

Charles McEntyre
Tennessee Valley Authority
1101 Market Street, HB2A
Chattanooga, TN 37402-2801
February 23, 2001

Mr. Vann Smith
78 Hubo Cir
Crossville, TN 38555-8806

Dear Mr. Smith:

Thank you for your input. We are currently preparing an Environmental Assessment, as required by the National Environmental Policy Act, to evaluate options of this proposed action. Your feedback will be considered as we prepare this Environmental Assessment.

Sincerely,

Charles L. McEntyre
Environmental Engineering Services

APPENDIX G
WETLANDS DETERMINATION DATA SHEETS

Project/Site: Hartsville Applicant/Owner: Tennessee Valley Authority Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: November 17, 2000 County: Trousdale State: TN

Do normal circumstances exist on the site?: Yes Is the site significantly disturbed (Atypical Situation)? No Is the area a potential Problem Area: No	Community ID: PFO1C Transect ID: not applicable Plot ID: **Wetland A**

VEGETATION

Dominant Species	Stratum	Indicator	Dominant Species	Stratum	Indicator
Salix nigra	Can/Sapl	OBL			
Acer negundo	Can/Sapl	FAC			
Populus deltoides	Canopy	FAC+			
Platanus occidentalis	Canopy	FACW-			
Festuca arundinacea (tentative identification)	Herbaceous	FAC-			
Boehmeria cylindrica	Herbaceous	FACW			
Chelone glabra	Herbaceous	OBL			

Remarks: Dominated by young box elder and black willow.

Percent of dominant species that are OBL, FACW or FAC (excluding FAC-): 86%

HYDROLOGY

Recorded Data: ____ Stream, Lake, or Tide Gauge ____ Aerial Photographs ____ Other _X_ No Recorded Data Available Field Observations: Depth of Surface Water: 0" - 3" Depth to Free Water in Pit: 0" Depth to Saturated Soil: 0"	Wetland Hydrology Indicators: Primary Indicators: _X_ Inundated _X_ Saturated in Upper 12 inches ___ Water Marks _X_ Drift Lines ___ Sediment Deposits X Drainage Patterns in Wetlands Secondary Indicators: ___ Oxidized Root Channels in Upper 12" _X_ Water-stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test Other (Explain in Remarks)

Remarks: Part of wetland was inundated; part was saturated but not inundated.

Project/Site: Hartsville	Date: November 17, 2000
Applicant/Owner: TVA	Transect ID: not applicable
Investigator: B. Rosensteel, wetlands contractor	Plot ID: **Wetland A**

SOILS

Map Unit Name: Data not available on soil survey	Drainage Class:
Taxonomy:	Do Field Observations Confirm Mapped Type?:

Profile Description

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/Contrast	Textures, Concretions Structures, etc.
0”-4”	A	10YR5/1			Silt loam
4”-8”	B	10YR6/2	7.5YR4/6	15% /	Silty clay loam

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer Sandy Soil
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
_X__ Aquic Moisture Regime	____ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
_X_ Gleyed or Low-Chroma Colors	____ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? YES
Wetland Hydrology Present? YES
Hydric Soils Present? YES
Is this sampling point within a wetland? YES

Remarks:

Project/Site: Hartsville Applicant/Owner: Tennessee Valley Authority Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: November 17, 2000 County: Trousdale State: TN

Do normal circumstances exist on the site?: Yes Is the site significantly disturbed (Atypical Situation)? No Is the area a potential Problem Area: No	Community ID: PFO1C Transect ID: not applicable Plot ID: **Wetland B**

VEGETATION

Dominant Species	Stratum	Indicator	Dominant Species	Stratum	Indicator
Salix nigra	Can/Sapl	OBL			
Fraxinus pennsylvanica	Can/Sapl	FACW			
Boehmeria cylindrica	Herbaceous	FACW+			
Microstegium vimineum	Herbaceous	FAC+			
Festuca arundinacea (tentative identification)	Herbaceous	FAC-			

Remarks: Dominated by *Salix nigra* and young *Fraxinus pennsylvanica*.

Percent of dominant species that are OBL, FACW or FAC (excluding FAC-): 80%

HYDROLOGY

Recorded Data: ____ Stream, Lake, or Tide Gauge ____ Aerial Photographs ____ Other _X_ No Recorded Data Available Field Observations: Depth of Surface Water: 0" - 3" Depth to Free Water in Pit: 0" Depth to Saturated Soil: 0"	Wetland Hydrology Indicators: Primary Indicators: _X_ Inundated _X_ Saturated in Upper 12 inches ___ Water Marks ___ Drift Lines _X_ Sediment Deposits X Drainage Patterns in Wetlands Secondary Indicators: ___ Oxidized Root Channels in Upper 12" _X_ Water-stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test Other (Explain in Remarks)

Remarks: Part of wetland was inundated; part was saturated but not inundated.

Project/Site: Hartsville Applicant/Owner: TVA Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: November 17, 2000 Transect ID: not applicable Plot ID: **Wetland B**

SOILS

Map Unit Name: Data not available on soil survey	Drainage Class:
Taxonomy:	Do Field Observations Confirm Mapped Type?:

Profile Description

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/Contrast	Textures, Concretions Structures, etc.
0”-4”	A	10YR5/1			Silt loam
4”-8”	B	10YR6/2	7.5YR4/6	15% /	Silty clay loam

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer Sandy Soil
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	____ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
_X_ Gleyed or Low-Chroma Colors	____ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? YES
Wetland Hydrology Present? YES
Hydric Soils Present? YES
Is this sampling point within a wetland? YES

Remarks:

Project/Site: Hartsville Applicant/Owner: Tennessee Valley Authority Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: November 17, 2000 County: Trousdale State: TN

Do normal circumstances exist on the site?: Yes Is the site significantly disturbed (Atypical Situation)? No Is the area a potential Problem Area: No	Community ID: PFO1F Transect ID: not applicable Plot ID: **Wetland C**

VEGETATION

Dominant Species	Stratum	Indicator	Dominant Species	Stratum	Indicator
Fraxinus pennsylvanica	Canopy	FACW			
Acer negundo	Can/Sapl	FAC			
Ulmus sp. (*americana* or *rubra*	Can/Sapl	FACW FAC			
Boehmeria cylindrica	Herbaceous	FACW+			
Chasmanthium laxum	Herbaceous	FACW-			
Unidentified grass	Herbaceous				

Remarks:

Percent of dominant species that are OBL, FACW or FAC (excluding FAC-): 83

HYDROLOGY

Recorded Data: ____ Stream, Lake, or Tide Gauge ____ Aerial Photographs ____ Other _X_ No Recorded Data Available Field Observations: Depth of Surface Water: 0 - 4” Depth to Free Water in Pit: 0” Depth to Saturated Soil: 0”	Wetland Hydrology Indicators: Primary Indicators: _X_ Inundated _X_ Saturated in Upper 12 inches _X_ Water Marks ___ Drift Lines ___ Sediment Deposits ___ Drainage Patterns in Wetlands Secondary Indicators: ___ Oxidized Root Channels in Upper 12” _X_ Water-stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test Other (Explain in Remarks)

Remarks: This wetland is a wide, seepage-fed swale in the stream floodplain.

Project/Site: Hartsville Applicant/Owner: TVA Investigator: B. Rosensteel, wetlands contractor	Date: November 17, 2000 Transect ID: not applicable Plot ID: **Wetland C**

SOILS

Map Unit Name: Data not available on soil survey	Drainage Class:
Taxonomy:	Do Field Observations Confirm Mapped Type?:

Profile Description

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/Contrast	Textures, Concretions Structures, etc.
0-3”	A	10YR4/2		5% / Faint	Silt loam
3-8”	B	10YR4/1	7.5YR4/6	5%/	Silty clay loam

Hydric Soil Indicators:

____ Histosol	_X__ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer Sandy Soil
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	____ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
_X_ Gleyed or Low-Chroma Colors	____ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? YES
Wetland Hydrology Present? YES
Hydric Soils Present? YES
Is this sampling point within a wetland? YES

Remarks:

Project/Site: Hartsville Applicant/Owner: Tennessee Valley Authority Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: November 17, 2000 County: Trousdale State: TN

Do normal circumstances exist on the site?: Yes Is the site significantly disturbed (Atypical Situation)? No Is the area a potential Problem Area: No	Community ID: PFO/EM1F Transect ID: not applicable Plot ID: **Wetland D**

VEGETATION

Dominant Species	Stratum	Indicator	Dominant Species	Stratum	Indicator
Hibiscus moscheutos	Shrub	OBL	*Acer negundo*	Canopy	FAC
Polygonum hydropiperoides	Herbaceous	OBL	*Salix nigra*	Sapling	OBL
Leersia oryzoides	Herbaceous	OBL	*Ulmus* sp. (*U. americana or U. rubra*	Canopy	FACW FAC
Boehmeria cylindrica	Herbaceous	FACW+	*Acer saccharinum*	Canopy	FACW
Sparganium americanum	Herbaceous	OBL			
Helenium autumnale	Herbaceous	FACW			

Remarks:

Percent of dominant species that are OBL, FACW or FAC (excluding FAC-): 100

HYDROLOGY

Recorded Data: ____ Stream, Lake, or Tide Gauge ____ Aerial Photographs ____ Other _X_ No Recorded Data Available Field Observations: Depth of Surface Water: None Depth to Free Water in Pit: 5” Depth to Saturated Soil: 0”	Wetland Hydrology Indicators: Primary Indicators: ___ Inundated _X_ Saturated in Upper 12 inches ___ Water Marks _X_ Drift Lines _X_ Sediment Deposits ___ Drainage Patterns in Wetlands Secondary Indicators: ___ Oxidized Root Channels in Upper 12” _X_ Water-stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test Other (Explain in Remarks)

Remarks: Just downstream of this wetland, the stream bottom is crossed by a high berm with a narrow opening for the stream. Concrete which had been placed above the stream opening has collapsed into the stream. The embayment begins downstream of the berm. At times, high embayment water levels flood Wetland D on the upstream side of the berm.

Project/Site: Hartsville Applicant/Owner: TVA Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: November 17, 2000 Transect ID: not applicable Plot ID: **Wetland D**

SOILS

Map Unit Name: Lindell silt loam	Drainage Class: Moderately well-drained
Taxonomy:	Do Field Observations Confirm Mapped Type?: Similarity to Melvin soil which is an inclusion in Lindell

Profile Description

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/Contrast	Textures, Concretions Structures, etc.
0-4”	A	10YR5/1	7.5YR4/6	10%	Silt loam
4-10”	B	10YR6/2	7.5YR4/6	10%	Silt loam

Hydric Soil Indicators:

____ Histosol	_X__ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer Sandy Soil
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	__X_ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
_X_ Gleyed or Low-Chroma Colors	____ Other (Explain in Remarks)

Remarks: Lindell silt loam is listed on the Trousdale County hydric soils list because of inclusions of Melvin silt loam.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? YES
Wetland Hydrology Present? YES
Hydric Soils Present? YES
Is this sampling point within a wetland? YES

Remarks:

Project/Site: Hartsville Applicant/Owner: Tennessee Valley Authority Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: November 17, 2000 County: Trousdale State: TN

Do normal circumstances exist on the site?: Yes Is the site significantly disturbed (Atypical Situation)? No Is the area a potential Problem Area: No	Community ID: PSS1F Transect ID: not applicable Plot ID: **Wetland E**

VEGETATION

Dominant Species	Stratum	Indicator	Dominant Species	Stratum	Indicator
Salix nigra	Can/Sapl	OBL			
Acer saccharinum	Canopy	FACW			
Microstegium vimineum	Herbaceous	FAC+			
Eleocharis sp.	Herbaceous	OBL			
Bidens sp.	Herbaceous	FACW or OBL			

Remarks:

Percent of dominant species that are OBL, FACW or FAC (excluding FAC-): 100

HYDROLOGY

Recorded Data: ____ Stream, Lake, or Tide Gauge ____ Aerial Photographs ____ Other _X_ No Recorded Data Available Field Observations: Depth of Surface Water: None Depth to Free Water in Pit: 0" in places Depth to Saturated Soil: 0"	Wetland Hydrology Indicators: Primary Indicators: ___ Inundated _X_ Saturated in Upper 12 inches ___ Water Marks ___ Drift Lines _X_ Sediment Deposits ___ Drainage Patterns in Wetlands Secondary Indicators: ___ Oxidized Root Channels in Upper 12" ___ Water-stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test Other (Explain in Remarks)

Remarks: This is a small (< 0.5 acre), fringe wetland on the edge of the embayment. The wetland is under several inches of water when reservoir water levels are high during the growing season or during flood events.

Project/Site: Hartsville Applicant/Owner: TVA Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: November 17, 2000 Transect ID: not applicable Plot ID: **Wetland E**

SOILS

Map Unit Name: This small area is considered to be part of embayment in which no soil type is mapped. Taxonomy:	Drainage Class: Do Field Observations Confirm Mapped Type?:

Profile Description

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/Contrast	Textures, Concretions Structures, etc.

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer Sandy Soil
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	____ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
____ Gleyed or Low-Chroma Colors	__X_ Other (Explain in Remarks)

Remarks: The soil was not examined for hydric characteristics. It is likely that the soil is depositional due to the location at the edge of a stream embayment. The topographic location (within the embayment shoreline), the dominance of OBL and FACW vegetation, and saturated soils infer hydric soil.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? YES
Wetland Hydrology Present? YES
Hydric Soils Present? YES
Is this sampling point within a wetland? YES

Remarks:

Project/Site: Hartsville Applicant/Owner: Tennessee Valley Authority Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: November 17, 2000 County: Trousdale State: TN

Do normal circumstances exist on the site?: Yes Is the site significantly disturbed (Atypical Situation)? No Is the area a potential Problem Area: No	Community ID: PSS1F Transect ID: not applicable Plot ID: **Wetland F**

VEGETATION

Dominant Species	Stratum	Indicator	Dominant Species	Stratum	Indicator
Salix nigra	Can/Sapl	OBL			
Green ash	Sapling	FACW			
Ulmus americana	Sapling	FACW			
Hibiscus moscheutos	Shrub	OBL			
Lycopus virginicus	Herbaceous	OBL			

Remarks:

Percent of dominant species that are OBL, FACW or FAC (excluding FAC-): 100

HYDROLOGY

Recorded Data: ____ Stream, Lake, or Tide Gauge ____ Aerial Photographs ____ Other _X_ No Recorded Data Available Field Observations: Depth of Surface Water: None Depth to Free Water in Pit: 0" in places Depth to Saturated Soil: 0"	Wetland Hydrology Indicators: Primary Indicators: ___ Inundated _X_ Saturated in Upper 12 inches ___ Water Marks ___ Drift Lines _X_ Sediment Deposits ___ Drainage Patterns in Wetlands Secondary Indicators: ___ Oxidized Root Channels in Upper 12" ___ Water-stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test Other (Explain in Remarks)

Remarks: This is a small (< 0.25 acre), fringe wetland on the edge of the embayment. The wetland is under several inches of water when reservoir water levels are high during the growing season or during flood events.

Project/Site: Hartsville Applicant/Owner: TVA Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: November 17, 2000 Transect ID: not applicable Plot ID: **Wetland F**

SOILS

Map Unit Name: This small area is considered to be part of embayment in which no soil type is mapped. Taxonomy:	Drainage Class: Do Field Observations Confirm Mapped Type?:

Profile Description

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/Contrast	Textures, Concretions Structures, etc.

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer Sandy Soil
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	____ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
____ Gleyed or Low-Chroma Colors	__X_ Other (Explain in Remarks)

Remarks: The soil was not examined for hydric characteristics. It is likely that the soil is depositional due to the location at the edge of a stream embayment. The topographic location (within the embayment shoreline), the dominance of OBL and FACW vegetation, and saturated soils infer hydric soil.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? YES
Wetland Hydrology Present? YES
Hydric Soils Present? YES
Is this sampling point within a wetland? YES

Remarks:

Project/Site: Hartsville Applicant/Owner: Tennessee Valley Authority Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: November 30, 2000 County: Trousdale State: TN

Do normal circumstances exist on the site?: Yes Is the site significantly disturbed (Atypical Situation)? No Is the area a potential Problem Area: No	Community ID: PSS1A Transect ID: not applicable Plot ID: **Wetland G**

VEGETATION

Dominant Species	Stratum	Indicator	Dominant Species	Stratum	Indicator
Salix nigra	Can/Sapling	OBL			
Platanus occidentalis	Can/Sapling	FACW			
Callicarpa americana	Shrub	FACU-			
Typha latifolia	Herbaceous	OBL			
Microstegium vimineum	Herbaceous	FAC+			
Unidentified sedge species	Herbaceous	Likely to be FACW or OBL			

Remarks:

Percent of dominant species that are OBL, FACW or FAC (excluding FAC-): 83% (including unidentified sedge)

HYDROLOGY

Recorded Data: ____ Stream, Lake, or Tide Gauge ____ Aerial Photographs ____ Other _X_ No Recorded Data Available Field Observations: Depth of Surface Water: Several inches in stream Depth to Free Water in Pit: 0" in places Depth to Saturated Soil: 0"	Wetland Hydrology Indicators: Primary Indicators: _X_ Inundated _X_ Saturated in Upper 12 inches ___ Water Marks _X_ Drift Lines _X_ Sediment Deposits _X_ Drainage Patterns in Wetlands Secondary Indicators: ___ Oxidized Root Channels in Upper 12" ___ Water-stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test X Other (Explain in Remarks)

Remarks: Located in a channelized stream bed. Occasionally flooded.

Project/Site: Hartsville Applicant/Owner: TVA Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: November 30, 2000 Transect ID: not applicable Plot ID: **Wetland G**

SOILS

Map Unit Name: Area excluded from Trousdale County soil survey mapping	Drainage Class:
Taxonomy:	Do Field Observations Confirm Mapped Type?:

Profile Description

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/Contrast	Textures, Concretions Structures, etc.
0-4		2.5/N			Organic, silty loam

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer Sandy Soil
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
_X_ Aquic Moisture Regime	____ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
_X__ Gleyed or Low-Chroma Colors	__X_ Other (Explain in Remarks)

Remarks: There was not a normal soil profile. Substrate consists of silty, organic sediments that have deposited on large stone riprap put in place when stream was channelized.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? YES
Wetland Hydrology Present? YES
Hydric Soils Present? YES
Is this sampling point within a wetland? YES

Remarks:

Project/Site: Hartsville Applicant/Owner: Tennessee Valley Authority Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: November 30, 2000 County: Trousdale State: TN

Do normal circumstances exist on the site?: Yes Is the site significantly disturbed (Atypical Situation)? No Is the area a potential Problem Area: No	Community ID: PFO1C Transect ID: not applicable Plot ID: **Wetland H**

VEGETATION

Dominant Species	Stratum	Indicator	Dominant Species	Stratum	Indicator
Salix nigra	Can/Sapling	OBL	*Boehmeria cylindrica*	Herbaceous	FACW+
Fraxinus pennsylvanica	Can/Sapling	FACW			
Festuca arundinacea (tentative identification)	Herbaceous	FAC-			
Typha latifolia	Herbaceous	OBL			
Microstegium vimineum	Herbaceous	FAC+			
Unidentified sedge species	Herbaceous	Likely to be FACW or OBL			

Remarks:

Percent of dominant species that are OBL, FACW or FAC (excluding FAC-): 86% (including unidentified sedge)

HYDROLOGY

Recorded Data: ____ Stream, Lake, or Tide Gauge ____ Aerial Photographs ____ Other _X_ No Recorded Data Available Field Observations: Depth of Surface Water: 0 - 4” Depth to Free Water in Pit: 0” in places Depth to Saturated Soil: 0”	Wetland Hydrology Indicators: Primary Indicators: _X_ Inundated _X_ Saturated in Upper 12 inches ___ Water Marks _X_ Drift Lines _X_ Sediment Deposits _X_ Drainage Patterns in Wetlands Secondary Indicators: ___ Oxidized Root Channels in Upper 12” ___ Water-stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test X Other (Explain in Remarks)

Remarks: In seepage area.

Project/Site: Hartsville Applicant/Owner: TVA Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: November 30, 2000 Transect ID: not applicable Plot ID: **Wetland H**

SOILS

Map Unit Name: Area excluded from Trousdale County soil survey mapping	Drainage Class:
Taxonomy:	Do Field Observations Confirm Mapped Type?:

Profile Description

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/Contrast	Textures, Concretions Structures, etc.
0 - 4”	A	2.5/N	5YR4/6		silt loam; Mn concretions
4-10	B	2.5Y6/2	5YR4/6 10YR6/4 7/5YR4/6	10% 3% 10%	very silty loam

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer Sandy Soil
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
_X_ Aquic Moisture Regime	____ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
_X__ Gleyed or Low-Chroma Colors	____ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? YES
Wetland Hydrology Present? YES
Hydric Soils Present? YES
Is this sampling point within a wetland? YES

Remarks:

Project/Site: Hartsville Applicant/Owner: Tennessee Valley Authority Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: December 1, 2000 County: Trousdale State: TN

Do normal circumstances exist on the site?: Yes Is the site significantly disturbed (Atypical Situation)? No Is the area a potential Problem Area: No	Community ID: PEM/SS1H and F Transect ID: not applicable Plot ID: **Wetland J**

VEGETATION

Dominant Species	Stratum	Indicator	Dominant Species	Stratum	Indicator
Salix nigra	Can/Sapling	OBL	*Carex frankii*	Herbaceous	OBL
Fraxinus pennsylvanica	Can/Sapling	FACW	*Scirpus cyperinus*	Herbaceous	OBL
Acer saccharinum	Can/Sapling	FACW	*Eupatorium* sp.	Herbaceous	
Acer negundo	Can/Sapling	FAC	Unidentified grass	Herbaceous	
Boehmeria cylindrica	Herbaceous	FACW+			
Iva annua	Herbaceous	FAC			
Xanthium strumarium	Herbaceous	FAC			
Remarks:					

Percent of dominant species that are OBL, FACW or FAC (excluding FAC-): 82% (including unidentified grass and *Eupatorium* species.)

HYDROLOGY

Recorded Data: ____ Stream, Lake, or Tide Gauge ____ Aerial Photographs ____ Other _X_ No Recorded Data Available Field Observations: Depth of Surface Water: 0 to possibly 6 ft.+ Depth to Free Water in Pit: 0" in places Depth to Saturated Soil: 0"	Wetland Hydrology Indicators: Primary Indicators: _X_ Inundated _X_ Saturated in Upper 12 inches _X_ Water Marks ___ Drift Lines _X_ Sediment Deposits ___ Drainage Patterns in Wetlands Secondary Indicators: ___ Oxidized Root Channels in Upper 12" _X_ Water-stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test X Other (Explain in Remarks)
Remarks: In and on the occasionally inundated margins of an impoundment	

Project/Site: Hartsville Applicant/Owner: TVA Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: December 1, 2000 Transect ID: not applicable Plot ID: **Wetland J**

SOILS

Map Unit Name: Area excluded from Trousdale County soil survey mapping	Drainage Class:
Taxonomy:	Do Field Observations Confirm Mapped Type?:

Profile Description

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/Contrast	Textures, Concretions Structures, etc.
0 - 7”	A	10YR6/2	7.5YR4/6		very silty loam; Mn concretions

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer Sandy Soil
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
_X_ Aquic Moisture Regime	____ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
_X__ Gleyed or Low-Chroma Colors	__X_ Other (Explain in Remarks)

Remarks: Soil is perennially or seasonally inundated or saturated.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? YES
Wetland Hydrology Present? YES
Hydric Soils Present? YES
Is this sampling point within a wetland? YES

Remarks:

Project/Site: Hartsville Applicant/Owner: Tennessee Valley Authority Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: December 1, 2000 County: Trousdale State: TN

Do normal circumstances exist on the site?: Yes Is the site significantly disturbed (Atypical Situation)? No Is the area a potential Problem Area: No	Community ID: PFO1A Transect ID: not applicable Plot ID: **Wetland K**

VEGETATION

Dominant Species	Stratum	Indicator	Dominant Species	Stratum	Indicator
Fraxinus pennsylvanica	Canopy	FACW			
Platanus occidentalis	Canopy	FACW			
Acer negundo	Canopy	FAC			
Boehmeria cylindrica	Herbaceous	FACW+			

Remarks: Scoured by runoff. Sparse groundcover includes only scattered specimens of *Boehmeria*.

Percent of dominant species that are OBL, FACW or FAC (excluding FAC-): 100%

HYDROLOGY

Recorded Data: ____ Stream, Lake, or Tide Gauge ____ Aerial Photographs ____ Other _X_ No Recorded Data Available Field Observations: Depth of Surface Water: none Depth to Free Water in Pit: none Depth to Saturated Soil: not saturated	Wetland Hydrology Indicators: Primary Indicators: ___ Inundated ___ Saturated in Upper 12 inches _X_ Water Marks _X_ Drift Lines ___ Sediment Deposits _X_ Drainage Patterns in Wetlands Secondary Indicators: ___ Oxidized Root Channels in Upper 12” _X_ Water-stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test X Other (Explain in Remarks)

Remarks: Runoff swale in middle of young forest stand. No apparent surface outlet for swale.

Project/Site: Hartsville Applicant/Owner: TVA Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: December 1, 2000 Transect ID: not applicable Plot ID: **Wetland K**

SOILS

Map Unit Name: Area excluded from Trousdale County soil survey mapping	Drainage Class:
Taxonomy:	Do Field Observations Confirm Mapped Type?:

Profile Description

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/Contrast	Textures, Concretions Structures, etc.
0 - 7”	A	10YR6/1	7.5YR5/6		Clay loam

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer Sandy Soil
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	____ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
_X__ Gleyed or Low-Chroma Colors	____ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? YES
Wetland Hydrology Present? YES
Hydric Soils Present? YES
Is this sampling point within a wetland? YES

Remarks:

Project/Site: Hartsville Applicant/Owner: Tennessee Valley Authority Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: December 1, 2000 County: Trousdale State: TN

Do normal circumstances exist on the site?: Yes Is the site significantly disturbed (Atypical Situation)? Yes Is the area a potential Problem Area: No	Community ID: PEM1A Transect ID: not applicable Plot ID: **Wetland L**

VEGETATION

Dominant Species	Stratum	Indicator	Dominant Species	Stratum	Indicator
Leersia oryzoides	Herbaceous	OBL	*Salix nigra*	Sapling	OBL
Festuca arundinacea	Herbaceous	FAC-			
Typha latifolia	Herbaceous	OBL			
Carex frankii	Herbaceous	OBL			
Cyperus aesculentus	Herbaceous	FAC			
Boehmeria cylindrica	Herbaceous	FACW+			
Rumex conglomeratus.	Herbaceous	FACW-			
Remarks:					

Percent of dominant species that are OBL, FACW or FAC (excluding FAC-): 88%

HYDROLOGY

Recorded Data: ____ Stream, Lake, or Tide Gauge ____ Aerial Photographs ____ Other _X_ No Recorded Data Available Field Observations: Depth of Surface Water: none Depth to Free Water in Pit: none Depth to Saturated Soil: not saturated	Wetland Hydrology Indicators: Primary Indicators: ___ Inundated _X_ Saturated in Upper 12 inches ___ Water Marks ___ Drift Lines ___ Sediment Deposits _X_ Drainage Patterns in Wetlands Secondary Indicators: ___ Oxidized Root Channels in Upper 12” ___ Water-stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test X Other (Explain in Remarks)
Remarks: Wide swale in previously excavated intake channel that was to be used for nuclear plant.	

Project/Site: Hartsville Applicant/Owner: TVA Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: December 1, 2000 Transect ID: not applicable Plot ID: **Wetland L**

SOILS

Map Unit Name: Area excluded from Trousdale County soil survey mapping	Drainage Class:
Taxonomy:	Do Field Observations Confirm Mapped Type?:

Profile Description

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/Contrast	Textures, Concretions Structures, etc.
0 - 4		10YR7/2 (60%) 10YR5/6(40%)			Fill soil washed in from surrounding banks or underlying stone rip-rap

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer Sandy Soil
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	____ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
_X__ Gleyed or Low-Chroma Colors	_X__ Other (Explain in Remarks)

Remarks: Fill soil has evidence of reducing conditions (dominant 2 chroma), but appears not to have had enough time to develop other hydric soil indicators.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? YES
Wetland Hydrology Present? YES
Hydric Soils Present? Inconclusive.
Is this sampling point within a wetland? YES

Remarks:

Project/Site: Hartsville Applicant/Owner: Tennessee Valley Authority Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: December 1, 2000 County: Trousdale State: TN

Do normal circumstances exist on the site?: Yes Is the site significantly disturbed (Atypical Situation)? No Is the area a potential Problem Area: No	Community ID: PFO1C Transect ID: not applicable Plot ID: **Wetlands M and N**

VEGETATION

Dominant Species	Stratum	Indicator	Dominant Species	Stratum	Indicator
Acer saccharinum	Can/Sapling	FACW			
Ulmus americana	Can/Sapling	FACW			
Boehmeria cylindrica	Herbaceous	FACW+			
Microstegium vimineum	Herbaceous	FAC+			
Lobelia cardinalis	Herbaceous	OBL			

Remarks:

Percent of dominant species that are OBL, FACW or FAC (excluding FAC-): 100%

HYDROLOGY

Recorded Data: ____ Stream, Lake, or Tide Gauge ____ Aerial Photographs ____ Other _X_ No Recorded Data Available Field Observations: Depth of Surface Water: Not inundated Depth to Free Water in Pit: 9” Depth to Saturated Soil: 0”	Wetland Hydrology Indicators: Primary Indicators: _X_ Inundated _X_ Saturated in Upper 12 inches _X_ Water Marks _X_ Drift Lines _X_ Sediment Deposits ___ Drainage Patterns in Wetlands Secondary Indicators: ___ Oxidized Root Channels in Upper 12” _X_ Water-stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test Other (Explain in Remarks)

Remarks: These wetlands are in small, low areas adjacent to the Cumberland River “behind” the island in the southeast corner of the site.

Project/Site: Hartsville Applicant/Owner: TVA Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: December 1, 2000 Transect ID: not applicable Plot ID: **Wetlands M and N**

SOILS

Map Unit Name: Area excluded from Trousdale County soil survey mapping	Drainage Class:
Taxonomy:	Do Field Observations Confirm Mapped Type?:

Profile Description

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/Contrast	Textures, Concretions Structures, etc.
0 - 5”	A	10YR7/1	5YR3/6 and 4/6		silt loam
5 - 10	B	10YR6/1	5YR4/3 and 4/6		sandy loam

Hydric Soil Indicators:

____ Histosol	____ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer Sandy Soil
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
_X__ Aquic Moisture Regime	____ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
_X__ Gleyed or Low-Chroma Colors	____ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? YES
Wetland Hydrology Present? YES
Hydric Soils Present? YES
Is this sampling point within a wetland? YES

Remarks:

Project/Site: Hartsville Applicant/Owner: Tennessee Valley Authority Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: June 28, 2001 County: Trousdale State: TN

Do normal circumstances exist on the site?: Yes Is the site significantly disturbed (Atypical Situation)? No Is the area a potential Problem Area: No	Community ID: PSS/EM1A/B Transect ID: not applicable Plot ID: **Wetland O**

VEGETATION

Dominant Species	Stratum	Indicator	Dominant Species	Stratum	Indicator
Salix nigra	Sapling	OBL			
Carex vulpinoidea	Herbaceous	OBL			
Boehmeria cylindrica	Herbaceous	FACW+			
Leersia oryzoides	Herbaceous	OBL			
Festuca arundinaceae	Herbaceous	FAC-			
Typha latifolia	Herbaceous	OBL			
Asclepia incarnata	Herbaceous	OBL			
Remarks:					

Percent of dominant species that are OBL, FACW or FAC (excluding FAC-): 86%

HYDROLOGY

Recorded Data: ____ Stream, Lake, or Tide Gauge ____ Aerial Photographs ____ Other _X_ No Recorded Data Available Field Observations: Depth of Surface Water: Not inundated Depth to Free Water in Pit: 5” Depth to Saturated Soil: 0”	Wetland Hydrology Indicators: Primary Indicators: ___ Inundated _X_ Saturated in Upper 12 inches ___ Water Marks ___ Drift Lines ___ Sediment Deposits ___ Drainage Patterns in Wetlands Secondary Indicators: _X_ Oxidized Root Channels in Upper 12” ___ Water-stained Leaves ___ Local Soil Survey Data _X_ FAC-Neutral Test Other (Explain in Remarks)
Remarks: Situated along a small stream, the wetland is periodically flooded, and there is an apparent high water table in riparian zone.	

Project/Site: Hartsville Applicant/Owner: TVA Investigator: B. Rosensteel, TVA Wetlands Contractor	Date: June 28, 2001 Transect ID: not applicable Plot ID: **Wetland O**

SOILS

Map Unit Name: Area excluded from Trousdale County soil survey mapping	Drainage Class:
Taxonomy:	Do Field Observations Confirm Mapped Type?:

Profile Description

Depth	Horizon	Matrix Color	Mottle Colors	Mottle Abundance/Contrast	Textures, Concretions Structures, etc.
0 - 10	A	10YR5/1.5			silt loam; silty clay loam
0-4 and 6-8 4-6	A B	10YR5/1.5 3/N, 4/N			silt loam silty clay loam Organic layer

Hydric Soil Indicators:

____ Histosol	_X__ Concretions
____ Histic Epipedon	____ High Organic Content in Surface Layer Sandy Soil
____ Sulfidic Odor	____ Organic Streaking in Sandy Soils
____ Aquic Moisture Regime	____ Listed on Local Hydric Soils List
____ Reducing Conditions	____ Listed on National Hydric Soils List
_X__ Gleyed or Low-Chroma Colors	____ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? YES
Wetland Hydrology Present? YES
Hydric Soils Present? YES
Is this sampling point within a wetland? YES

Remarks:

APPENDIX H
SURVEY OF DIXON ISLAND MUSSEL BED

A Survey of the Dixon Island Mussel Bed adjacent to the Hartsville Investment Recovery Center Site, Cumberland River, Smith and Trousdale Counties, TN

Input for the Hartsville Land Sale EA

S. J. Fraley
Watershed Technical Services
NRB-BA-N
865-632-1605

Summary of Results

Significantly fewer mussels were found than in previous surveys. No live mussels were collected in 80 quadrat samples and 23 mussels were collected in random qualitative searches. No live federal-listed mussel species were found. Given the overall decline of the mussel bed, listed mussel species are not likely to persist. No evidence of recent reproduction was observed. This mussel bed appears to be dying out.

Background and Introduction

TVA is preparing an Environmental Assessment (EA) concerning the possible sale of a significant proportion of the Hartsville Investment Recovery Center site (former Hartsville Nuclear Plant construction site) for use as an industrial park. While no specific proposal concerning access to the adjacent reach of the Cumberland River is included in the EA, barge facilities and water uses could be expected from some types of plants which might locate in the proposed industrial park. This survey of mussel resources along the frontage of the potential industrial park will help complete a full evaluation of the possible effects of this change in use of the Hartsville site.

TVA has conducted two previous surveys of mussel resources in the Cumberland River adjacent to the former Hartsville Nuclear Plant site (plant unfinished). In 1976, the limits of a long, narrow mussel bed were defined by the presence of mussels at a density of at least three animals per square meter. In 1981, samples within the bed yielded average densities of 10 mussels per square meter. During both surveys, the bed was found to begin roughly 150 ft (45 meters) offshore and vary in width from about 50 feet (15 meters) at the upstream end, to 100 feet (31 meters) in the middle, and to a very narrow band about 30 feet (9 meters) wide at its downstream end. The upstream end of this bed was approximately 300 feet (91 meters) downstream from Dixon Island, and the bed extended downstream about 2,200 feet (670 meters) to near the barge unloading facility for the former nuclear plant. Very few mussels were found downstream from the bed. During the 1976 survey, the channel behind Dixon Island was found to have a mud and silt bottom that was colonized by very few mussels.

One federal-endangered mussel species (the pink mucket [*Lampsilis abrupta*]) has been collected from this bed during both previous surveys (one in 1976 and nine in 1981). Two other federal-endangered species, the dromedary pearlymussel (*Dromus dromas*) and the catspaw (*Epioblasma obliquata obliquata*), are known from the same general reach of the Cumberland River but have not been collected from the bed immediately adjacent to the Hartsville site.

This re-survey of mussel resources along this reach of the Cumberland River will assist the EA evaluation in several ways. Most importantly, this survey updates knowledge of the status of the mussel resources in this area. In addition, this survey effort includes part of the river frontage (downstream from the former barge unloading facility) which had not been sampled since 1976. This survey also provides some information about whether endangered mussel species could occur in areas which might be affected by waterfront development projects associated with the proposed industrial park.

Methods

TVA scientific divers conducted the survey using an abbreviated version of the field techniques followed in 1976 and 1981. Dives were made on January 17 and 18, 2001. Along the river frontage downstream from Dixon Island, samples were taken using 50-meter transect lines and ¼-square-meter quadrats. Five transects were run in the area of the known mussel bed, and three transects were run from the downstream end of the known mussel bed to the downstream boundary of the possible industrial park. Along each transect, quadrat samples were taken at 5-meter intervals, starting 25 meters off the shore. This total of eight transects produced information from 80 quadrat samples, covering both the length of the river frontage and the full width of the mussel bed as defined by information gathered in 1981.

Timed searches were proposed to determine if mussels are present around Dixon Island; however, given the absence of significant numbers of mussels in surveys of that area in the past and the apparent silting-in of the upstream end of the Dixon Island channel, these proposed searches were deemed unnecessary. Given the results of the quadrat sampling, additional effort within the known mussel bed was judged to be more important. Two 15-minute random searches were conducted within the previously defined bounds of the mussel bed: one in the area previously identified as the widest and highest density portion of the mussel bed and one adjacent to the existing barge landing. A third 15-minute random search was conducted approximately 8 miles upstream from the Dixon Island bed at CuRM 292.5, near Rome Landing. This was done to check the status of another known mussel bed of similar quality to help inform as to whether the declines seen at the Dixon Island bed were unique or part of an overall trend in that portion of the river.

Results and Discussion

Mussel densities in the Dixon Island mussel bed have declined significantly in the 19 years since they were last surveyed. No live mussels were collected in any of the 80 quadrat samples taken. A total of 23 live mussels were found during two 15-minute random searches within the previously defined bounds of the mussel bed. Fifteen live mussels were found in what was the widest and most densely populated part of the bed (mid-bed) (Table 1). Another eight live mussels were found in the bed adjacent to the existing barge terminal. No live listed species were found; however, several relict pink mucket shells were found. An abundance of dead shells was present in the area where the mussel bed had been.

Table 1. Mussels Collected During Three 15-Minute, Random-Search Dives

Species	Common Name	Number Collected		
		Dixon Island-Mid-bed	Dixon Island-Barge terminal	Rome Landing
Lasmigona complanata	White heelsplitter	-	-	1
Megalonaias nervosa	Washboard	8	4	-
Pleurobema cordatum	Ohio pigtoe	1	-	-
Quadrula pustulosa	Pimpleback	6	4	-

Substrate conditions within the area of the former mussel bed appeared to be good, with a band of favorable substrate of gravel, sand, and cobble present. Sand dominated substrates toward mid-channel and sand, silt, and coarse organic matter were more dominant toward the shoreline.

Mussel densities per square meter within the Dixon Island mussel bed averaged eight in 1976 and ten in 1981. Densities have declined such that they are now undetectable using the abbreviated methods of the previous studies. Similar declines at a mussel bed near Rome Landing were implied by the sparse results of the qualitative search performed there (Table 1). This suggests an overall trend of declining mussel populations in this portion of the Cumberland River. No significant reproduction has been reported from these mussel populations in recent decades. These are essentially non-reproducing relict populations that will likely disappear as individuals reach the limit of their life span. The overall decline seen at the Dixon Island bed strongly suggests that the likelihood of listed species persisting there is very low. Therefore, activities associated with an industrial park that may occur in the Cumberland River adjacent to the Hartsville nuclear site (e.g., modification of the existing barge terminal or construction of new barge facilities) are not likely to have significant effects on federal-listed mussel species.

APPENDIX I
AGENCY CORRESPONDENCE

TENNESSEE HISTORICAL COMMISSION
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
2941 LEBANON ROAD
NASHVILLE, TN 37243-0442
(615) 532-1550

July 23, 2001

Mr. J. Bennett Graham
Tennessee Valley Authority
Cultural Resources
Post Office Box 1589
Norris, Tennessee 37828-1589

RE: TVA, ARCHAEOLOGICAL ASSESSMENT, HARTSVILLE INDUSTRIAL PARK/HNPR, UNINCORPORATED, TROUSDALE COUNTY, TN

Dear Mr. Graham:

At your request, our office has reviewed the above-referenced archaeological survey and testing report in accordance with regulations codified at 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739). Based on the information provided, we concur that areas 1 and 2a – 2f the project area contains no archaeological resources eligible for listing in the National Register of Historic Places.

Therefore, this office has no objection to the implementation of this project within areas 1 and 2a-2f. If project plans are changed or archaeological remains are discovered during construction, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act.

Your cooperation is appreciated.

Sincerely,

Herbert L. Harper
Executive Director and
Deputy State Historic
Preservation Officer

HLH/jmb

TENNESSEE WILDLIFE RESOURCES AGENCY

REGION II
ELLINGTON AGRICULTURAL CENTER
P.O. BOX 41489
NASHVILLE, TENNESSEE 37204-0747

June 26, 2001

Mr. Ralph Jordan
Tennessee Valley Authority
P.O. Box 1589
Norris, TN 37828-1589

Dear Ralph,

Lynn Barrett and myself have done some work on the Hartsville Generating Site in Smith and Trousdale Counties. I have enclosed the GIS map we have generated. The map is in response to the proposed industrial development by Trousdale County and the City of Hartsville. As you can see, the map indicates the boundary line to the site. The first main point of interest is the yellow hash marked areas. The yellow hash marks indicate areas of critical habitat. Most of this area is closely associated with riparian buffer zones. These areas are critical for maintaining and improving water quality. Riparian habitat is well documented concerning the diversity of wildlife it supports.

The second main area on the map is the red hash marked areas. When I first saw the topographical map of the site I assumed these areas where nothing more than fescue pasture. An on-site inspection reveals excellent early successional habitat that is highly conducive to neotropical songbirds and farm game wildlife. It is well documented that many neotropical species are in a decline. Habitat of this nature could be very beneficial to the recovery efforts of these species. I understand these red areas are the primary areas under consideration for the industrial development, however, there may be other options that could be considered.

If I can be of further assistance feel free to ask.

Sincerely,

Russ Skoglund
Wildlife Manager III

Hartsville Generating Site Proposed Industrial Park

Four Lake Regional Industrial Development Authority

POST OFFICE BOX 464
HARTSVILLE, TENNESSEE 37074
615 - 374-4607 FAX: 615 - 374-4608

October 24, 2001

Peter Scheffler
Tennessee Valley Authority
400 W. Summit Hill Dr., WT 8C-K
Knoxville, TN 37902

Dear Mr. Scheffler:

I am writing in response to your October 17th letter requesting comments regarding the proposed transfer of property at TVA's Hartsville Site.

Be advised that the Four Lake Regional Industrial Development Authority is fully supportive of the proposed transfer and its ultimate use for economic development purposes, i.e., job creation and improved family incomes.

The Four Lake Authority has pursued the utilization of this property for the economic betterment of our five county region for ten years. Obviously, we are delighted about the positive impacts such a transfer affords our communities.

Sincerely,

Richard Walker
Executive Director

RW:tlc

SERVING THE MIDDLE TENNESSEE COUNTIES OF MACON, SMITH, SUMNER, TROUSDALE and WILSON

United States Department of the Interior

FISH AND WILDLIFE SERVICE
446 Neal Street
Cookeville, TN 38501

December 17, 2001

Mr. Peter Scheffler
Tennessee Valley Authority
400 West Summit Hill Drive
WT 8C-K
Knoxville, Tennessee 37902

Re: FWS #02-0183

Dear Mr. Scheffler:

Thank you for your correspondence of October 16, 2001, regarding the Tennessee Valley Authority's (TVA) Draft Environmental Assessment (DEA)-Hartsville Land Transfer in Trousdale and Smith counties, Tennessee. TVA has been asked by the affected counties to sell approximately 700 acres of land within the former Hartsville Nuclear Plant site for industrial development. Fish and Wildlife Service (Service) personnel have reviewed the document and we offer the following comments.

The DEA adequately describes the resources within the project impact area and the proposed actions' impact on these resources. Obviously Alternative 1 (no action alternative) would result in the fewest adverse impacts to fish and wildlife resources while maintaining public recreational opportunities in the area.

If Alternative 2 is selected, we recommend that the 700-acre parcel be developed on an "as-needed" basis and public recreational opportunities continue in the undeveloped areas. We further recommend that a 100 foot buffer zone be established along both sides of all creeks and around all wetlands, and that a 300 foot buffer zone be established along the Cumberland River. All of the proposed project activities should be outside of these buffer zones. The placement of utility services should also be outside of this buffer zone except in the case of perpendicular stream crossings.

Thank you for the opportunity to comment on this action. If you have any questions regarding the information which we have provided, please contact Wally Brines of my staff at 931/528-6481, extension 222.

Sincerely,

for Lee A. Barclay, Ph.D.
Field Supervisor

xc: Jon Loney, TVA, Knoxville